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BULLETIN No. 178-75

WATERMASTER SERVICE
IN THE
RAYMOND BASIN
LOS ANGELES COUNTY

FOR PERIOD
JULY 1, 1974 THROUGH JUNE 30, 1975

AUGUST 1975

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The Resources Agency

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FOREWORD

The Watermaster presents this annual report as a comprehensive review of water conditions in the Raymond Basin during the past fiscal year. It is prepared for the Superior Court, County of Los Angeles, and for the parties to that Judgment made and entered December 23, 1944, in the Superior Court of the State of California in and for the County of Los Angeles. The action is identified as Case No. Pasadena C-1323, entitled "City of Pasadena, a municipal corporation, Plaintiff, vs. City of Alhambra, a municipal corporation, et al, Defendants".

The Raymond Basin, established as a Watermaster Service Area under Part 4, Division 2, of the California Water Code, is monitored by the State Department of Water Resources. The Basin has been operated since July 1, 1944, under the Judgment and a well-defined management plan, one phase of which limits ground water extractions.

This report covers the scope of the Watermaster's work, conditions of ground water supply, water use, ground water replenishment, variations from guidelines in the Judgment, and a complete financial report for the 1974-75 fiscal year.

Jack J. Goe
Jack J. Goe, Chief
Southern District
and Watermaster
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I. THE RAYMOND BASIN

A reliable source of potable ground water is a valuable asset to any community. The Raymond Basin, in the northwest corner of the San Gabriel Valley, is such a source for the cities of Alhambra, Arcadia, Monrovia, Pasadena, San Marino, Sierra Madre, and the communities of Altadena and La Canada. Watermaster Service provided by the State Department of Water Resources (DWR) helps to protect the rich supply of ground water for residents and industries. Figure 1 depicts water service areas of the parties.

The Raymond Basin is a small triangular ground water reservoir flanked by mountains on the north and west. The southern side is bounded by a seven-mile-long impervious dike formed by the Raymond Fault, which effectively separates the Raymond Basin from the San Gabriel Valley Basin.

Ground water has always had an impact on the people who live and work in the Raymond Basin. Most of the Basin's 40-square-mile area is urban-suburban and its cities use large amounts of fresh water daily, a substantial portion of which is pumped directly from the Basin.

Some years ago, when the ground water supply was endangered by rapidly falling water levels, timely legal action by water users halted the overdraft and prevented serious damage to the Basin. To prevent eventual depletion of ground water, the Judgment limited each party to a specific annual extraction. In 1955, provisions in the original Judgment were modified, increasing water rights to 30,622 acre-feet; they are now referred to as "Decreed Right, 1955". Certain variances were permitted, but no variance could prevail beyond a five-year period. The variances in use of water rights were not changed until June 24, 1974, when the five-year

variances were changed to 10 percent per year.

All water used in the Basin, particularly ground water, is monitored by a court-appointed Watermaster who reports all significant water-related events occurring in the Basin to the Superior Court and parties to the Judgment.

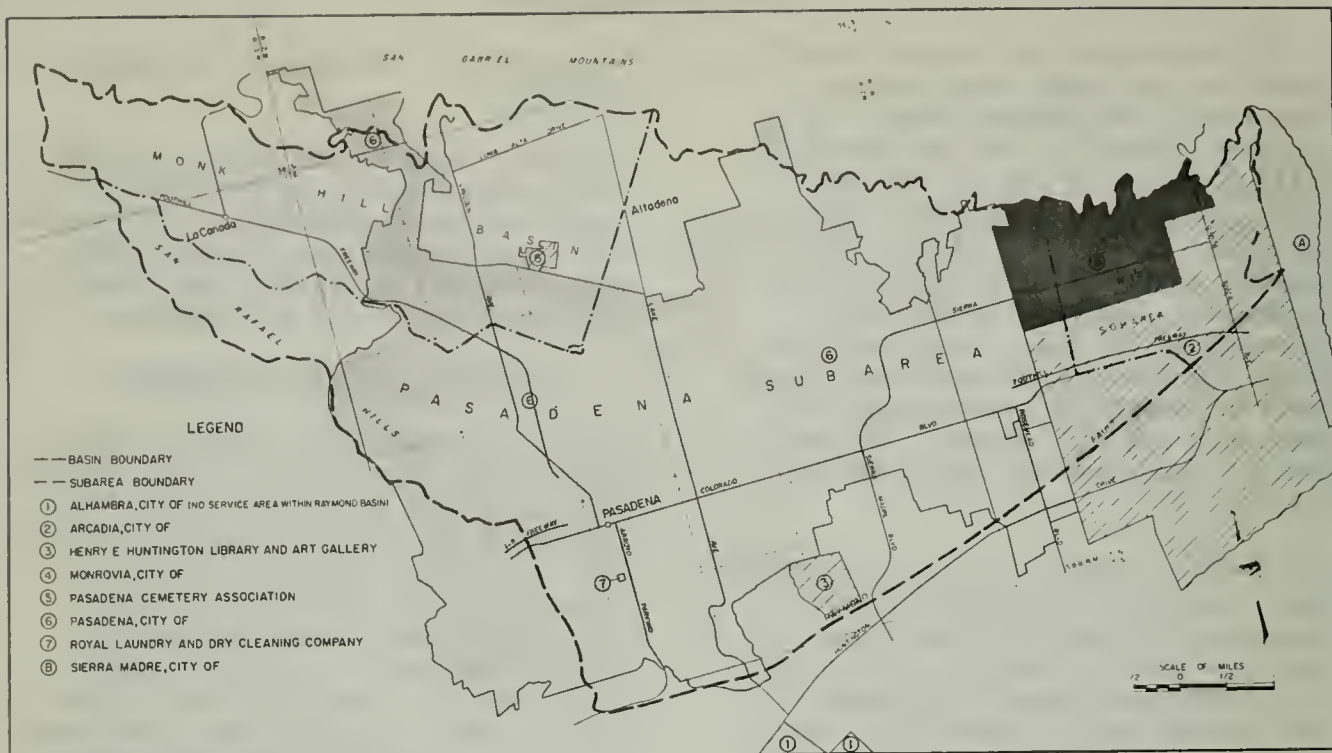
Functions of the Watermaster

Accurate measurement of ground water extractions is essential to the success of the Basin's management plan. The Watermaster calibrates the water meter on every active water well at least once every two years and uses every available means, including system efficiency tests, to confirm water-meter tests. Inaccurate meters must be repaired within 30 days. Follow-up tests on repaired meters and initial tests on new wells are scheduled whenever necessary.

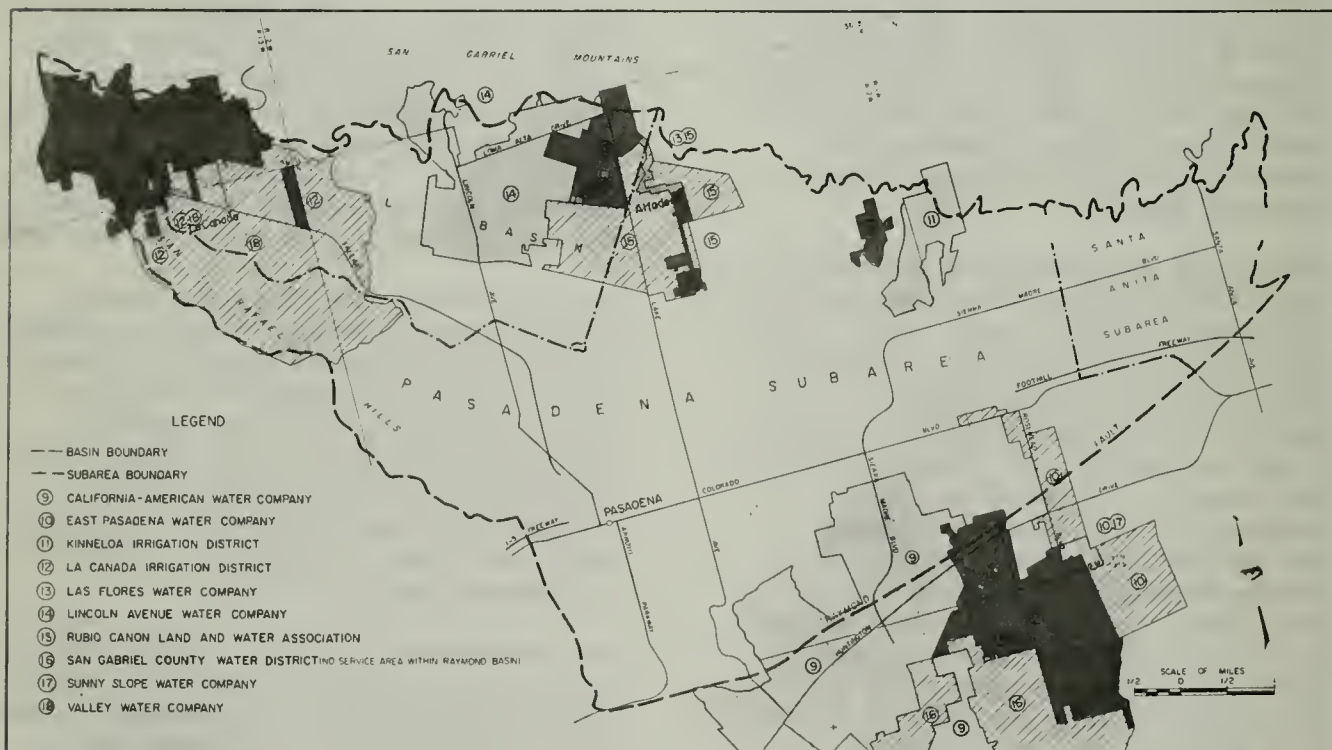
Once a month, the Watermaster receives ground water extraction reports from pumpers and updates each water right account by computing the amounts pumped during the previous month and current fiscal year. These data establish the amount that may legally be extracted by each pumper during the rest of the year.

In each spring and fall, the Watermaster measures depth to static ground water level in about 115 wells throughout the Basin and prepares fall and spring contour maps of the ground water surface and a "fall-to-fall" map showing lines of equal elevation changes in a one-year period. He also maintains nine stream-gaging stations to measure surface flow.

The Watermaster began a sewage outflow measurement program during the 1968-69 season, using F-type water-stage recorders on 12 major sewage trunk lines. The program was not implemented during the 1973-74 and 1974-75 seasons.



DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1975



DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1975

Figure 1. WATER SERVICE AREAS OF PARTIES TO WATERMASTER SERVICE, JUNE 1975

Summary of Operating Conditions

The summary below compares statistics for the last two water years and confirms that operating conditions are virtually unchanged from the prior year. A notable exception is the spreading operations which have de-

creased substantially. This is largely due to the continued decrease in precipitation. The effect of this lower precipitation is also seen in the 24 percent decrease in the amount of diversions.

Item	: : 1973-74 : Fiscal Year	: 1974-75 : Fiscal Year	: : Percent of change from : previous fiscal year
Parties, number of	21	18	- 14
Active pumpers, number of	21	18	- 14
Active nonparties, number of	2	2	0
Watermaster expenses	\$35,671.48	\$39,434.28	+ 11
Watermaster expenses, per acre-foot pumped	1.12	1.23	+ 10
Valley rainfall, in inches	19.66	16.94	- 14
Runoff, in acre-feet			
Inflow	12,071	4,993	- 59
Outflow	14,253	9,578	- 33
Spreading operation, in acre-feet	8,947	5,088	- 43
"Decreed Right 1955", in acre-feet	30,622	30,622	0
Extractions inside basin, in acre-feet	31,817	31,810	0
Diversions, in acre-feet	4,341	3,281	- 24
Imports, in acre-feet	22,801	24,130	+ 6
Exports, in acre-feet	- 8,232	- 10,290	+ 25
Net Water Use, in acre-feet	50,727	48,931	- 4

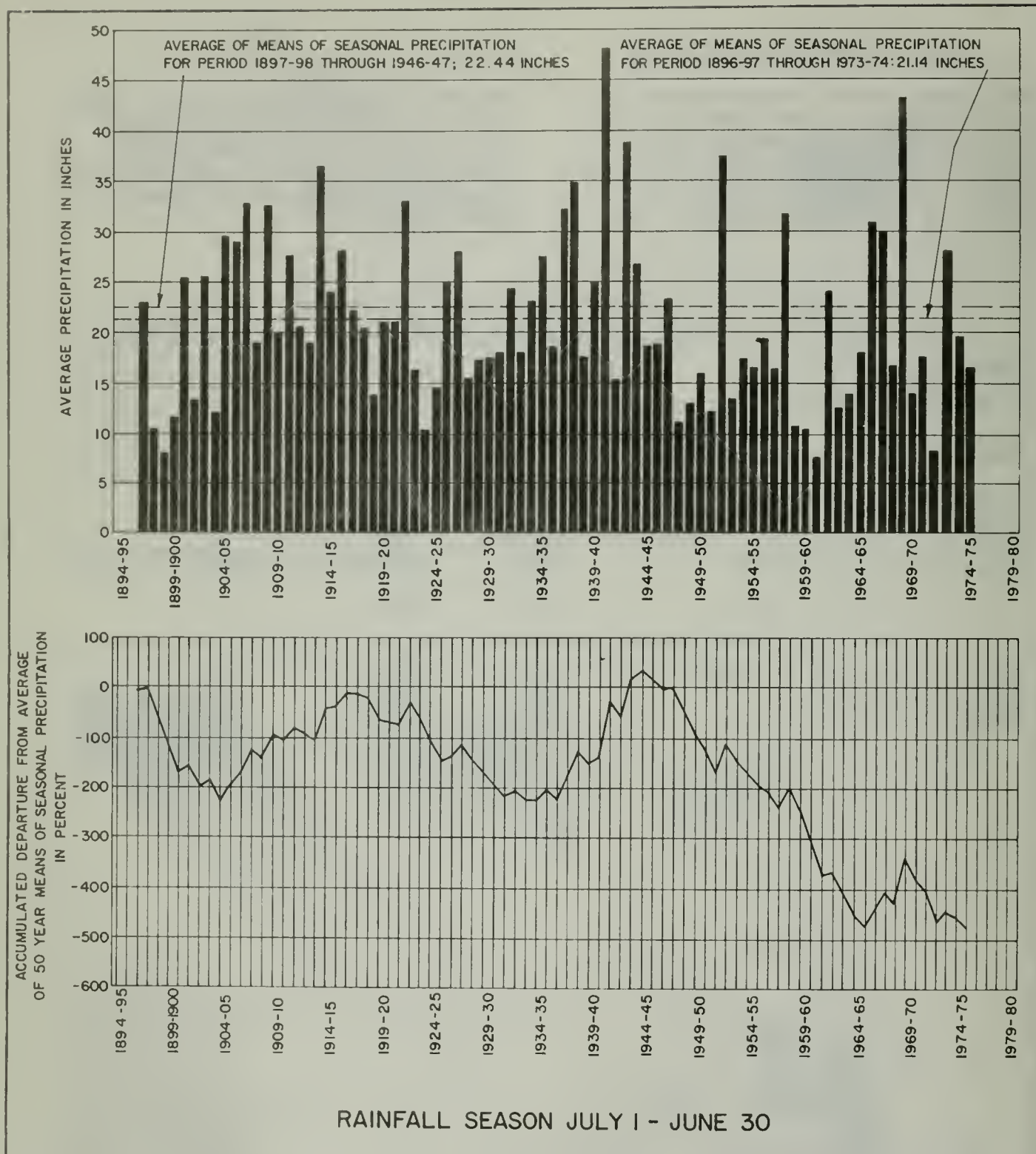


Figure 2. RAINFALL CHARACTERISTICS OF VALLEY STATIONS, 1896 - 1975

2. WATER SUPPLY

Southern California's urban economy depends on Colorado River, Owens River, and Northern California water, mountain runoff, ground water, reclaimed waste water, and desalinated water. These sources contribute to one of the world's largest water supply systems.

Precipitation

The ground water supply of the highly permeable Raymond Basin could be considerably influenced by local precipitation. Natural replenishment occurs readily when water has time to percolate into a storage zone. Unfortunately, most of the Basin is urban and much of its surface is paved with asphalt and concrete that

channel the runoff before it can replenish the ground water.

Long-term precipitation trends are shown in Figure 2, in which a downward slope indicates a continued dry period and an upward slope an above-normal increase in precipitation. The curve of cumulative departures from the mean shows the relative magnitude of the drought that began in 1944.

During the 1974-75 season, precipitation was about 75 percent of the long-time mean at valley stations and about 73 percent of the mean at mountain stations (Table 1). The below-normal precipitation during the past season continued the downward slope of the previous year.

Table 1. PRECIPITATION
In inches

Station		Period of record in years ^{a/}	1973-74	1974-75	50-year mean	
Name	Type					
	Valley	Mountain				
Altadena Golf Course	X		78	20.40	15.64	23.11
Highland Park	X		80	17.10	16.20	18.52
La Canada	X		63	18.56	17.97	23.20 ^{c/}
Mt. Wilson Observatory		X	41	37.03	34.01	36.40 ^{c/}
Oakwilde		X	48	17.50	16.55	28.19 ^{c/}
Cupid's Camp		X	58	35.81	23.64	41.19 ^{c/}
Pasadena Chlorine Plant		X	59	21.60	17.14	23.40 ^{c/}
Bailey Debris Basin ^{b/}	X	X	80	22.58	17.91	25.00
Upper Haine's Canyon		X	57	23.50	25.24	30.06 ^{c/}
Waterman Guard Station		X	48	23.54	23.11	27.72 ^{c/}
Seasonal Average	X			19.66	16.94	22.44
		X		25.94	22.50	30.63

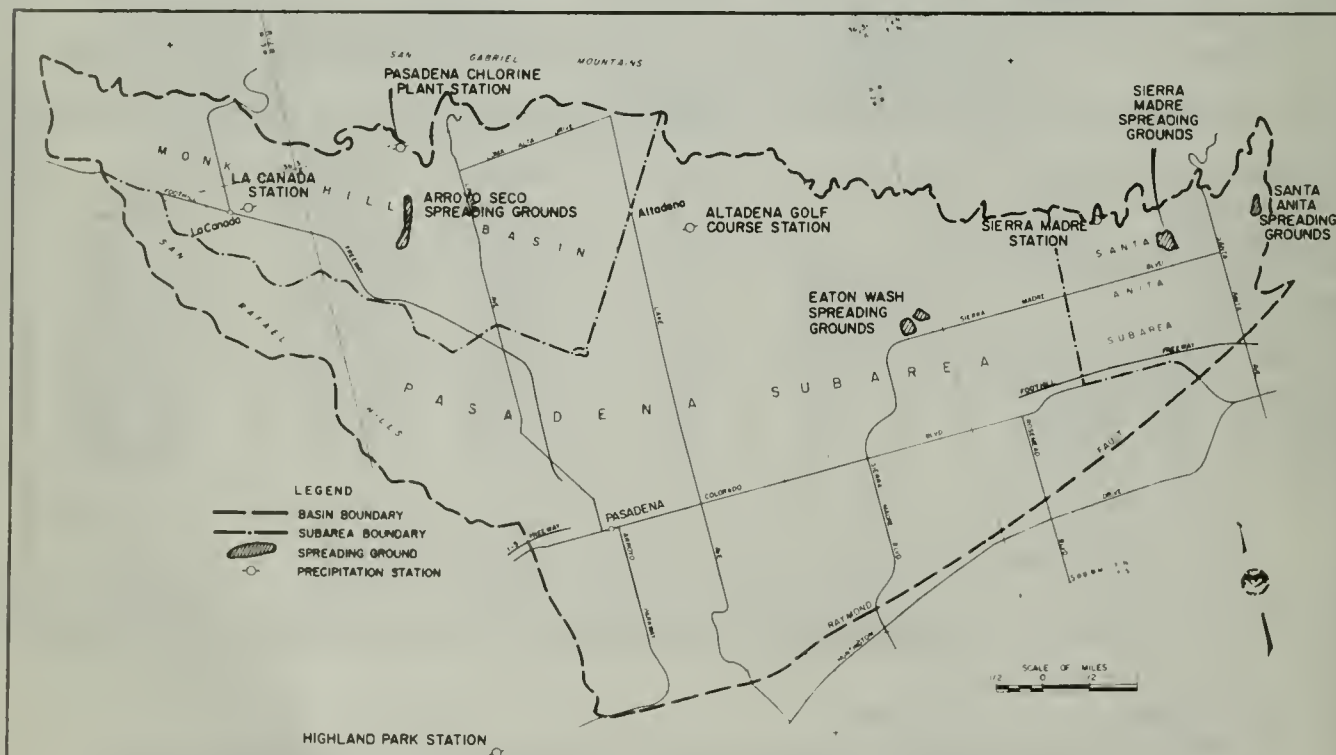
^{a/} Includes replaced station

^{b/} Substituted for Sierra Madre

^{c/} Estimated

Table 2. CREDIT FOR WATER SPREAD BY CITY OF SIERRA MADRE
In acre-feet

Season	(1) Salvage water at beginning of year	Water spread for salvage			(5) Salvage water lost to subsurface outflow	(6) Salvage water extracted	(7) Salvage water at end of year (1)+(4)-(5)-(6)=(7)
		(2) Amount	(3) Lost through natural percolation	(4) Water Stored (2)-(3)=(4)			
1951-52	0	1,937.0	526.9	1,410.1	124.4	449.4	836.3
52-53	836.3	258.0	94.6	163.4	243.1	334.9	421.7
53-54	421.7	580.0	4.6	575.4	115.4	596.1	285.6
54-55	285.6	341.0	21.5	319.5	15.1	559.1	30.9
55-56	30.9	429.0	90.9	338.1	9.6	128.0	231.4
56-57	231.4	331.0	167.1	163.9	42.1	62.0	291.2
57-58	291.2	3,409.0	811.9	2,597.1	278.8	0.0	2,609.5
58-59	2,609.5	1,308.0	521.0	787.0	945.1	37.5	2,413.9
59-60	2,413.9	45.0	10.4	34.6	705.6	208.2	1,534.7
1960-61	1,534.7	51.0	16.0	35.0	214.1	1,116.3	239.3
61-62	239.3	1,283.0	445.6	837.4	43.1	292.9	740.8
62-63	740.8	1,121.0	554.4	576.6	241.7	253.9	821.8
63-64	821.8	699.0	164.4	534.6	180.2	451.3	724.9
64-65	724.9	904.0	208.0	695.4	142.8	837.3	440.2
65-66	440.2	4,233.0	979.0	3,254.0	533.5	433.1	2,727.6
66-67	2,727.6	4,537.0	945.1	3,591.9	1,110.9	0.0	5,208.6
67-68	5,208.6	2,625.0	1,069.2	1,555.8	1,663.1	0.0	5,101.3
68-69	5,101.3	2,984.0	371.9	2,612.1	1,532.3	0.0	6,181.1
69-70	6,181.1	1,529.3	932.2	597.1	1,495.5	0.0	5,282.7
1970-71	5,282.7	1,145.3	369.7	775.6	1,285.7	0.0	4,772.6
71-72	4,772.6	1,014.4	311.5	702.9	1,518.3	0.0	3,957.2
72-73	3,957.2	3,204.0	824.5	2,379.5	815.1	84.7	5,436.9
73-74	5,436.9	3,029.1	891.9	2,137.2	1,663.7	64.7	5,905.7
74-75	5,905.7	2,244.0	927.8	1,316.2	1,744.1	1,161.0	4,316.8
TOTALS		39,241.1	11,260.1	27,990.4	16,603.3	7,070.4	



DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1975

Figure 3. PRECIPITATION STATIONS AND SPREADING GROUNDS

Salvage Credit for
City of Sierra Madre

The City of Sierra Madre spreads local street runoff and water diverted from Santa Anita Creek and Sierra Madre Wash. Essentially, the City uses the Eastern Unit as a storage facility, a privilege obtained several years ago by agreement with Arcadia. The Watermaster determines the total quantity spread in the Sierra Madre Grounds and credits the City with the portion that is not part of the natural replenishment of the Eastern Unit. This is called "salvage credit" water. It may not be pumped by the City until both its exchange water purchase, if any, and decreed right are fully used. Salvage credit remaining at the end of each season since 1951 is summarized in Table 2. The City pumped 1,161.0 acre-feet of its salvage credit water during the past season and lost 1,744.1 acre-feet of the stored water through subsurface outflow.

Ground Water Recharge

Overdraft occurs when ground water is extracted more rapidly than it is replaced by nature. Ground water aqui-

fers recharge themselves so slowly that a few years of concentrated pumping can upset a balance that took centuries to establish. This was the situation in the Raymond Basin several years ago.

Today, several methods of artificial recharge are being used to reestablish and maintain nature's balance. One of these is spreading. Areas are flooded with water that percolates into aquifers and supplements the natural supply. Large quantities can be returned to the ground by spreading, but the process is limited by the space available and the capacity of the Basin to accept the water.

The Los Angeles County Flood Control District (LACFCD) operates three spreading grounds in the Raymond Basin -- Arroyo Seco, Eaton Wash, and Santa Anita Grounds (Figure 3). Another project, the Sierra Madre Grounds, is operated by the City of Sierra Madre. Since the spread water is added directly to the Raymond Basin, water levels near the spreading grounds, especially the Eastern Unit and Monk Hill Basin, reflect the additions quickly. Spreading thus benefits all parties in the Basin greatly (Table 3).

Table 3. WATER SPREAD FOR GROUND WATER RECHARGE

Participant	Spreading Ground	Source	Acre-feet
LACFCD	Arroyo Seco	Arroyo Seco	672.50 ^{a/}
	Eaton Wash	Eaton Canyon	336.90 ^{b/}
	Santa Anita	Santa Anita Canyon	6.00
Kinneloa Irrigation District ^{c/}	Eaton Wash ^{d/}	Kinneloa Canyon	7.14
Las Flores Water Company ^{c/}	Rubio Canyon Debris Basin ^{d/}	Las Flores Canyon	27.85
Lincoln Avenue Water Company ^{c/}	Arroyo Seco ^{d/}	Millard & El Prieto Canyons	628.98
Pasadena, City of ^{c/}	Arroyo Seco ^{d/}	Arroyo Seco	215.27
	Eaton Wash ^{d/}	Eaton Canyon	798.88
Rubio Canon Land & Water Assoc. ^{c/}	Rubio Canyon Debris Basin ^{d/}	Rubio Canyon	150.95
Sierra Madre, City of	Sierra Madre	Santa Anita Canyon, Little Santa Anita Canyon, and Street Runoff	2,244.00
TOTAL			5,088.47

a/ Does not include 1,320 acre-feet percolation at Devil's Gate Dam.

b/ Does not include 251 acre-feet estimated percolation at Eaton Wash Reservoir.

c/ Pursuant to program for spreading credit.

d/ Major part of percolation occurs in the streambed.

Program for Spreading Credit

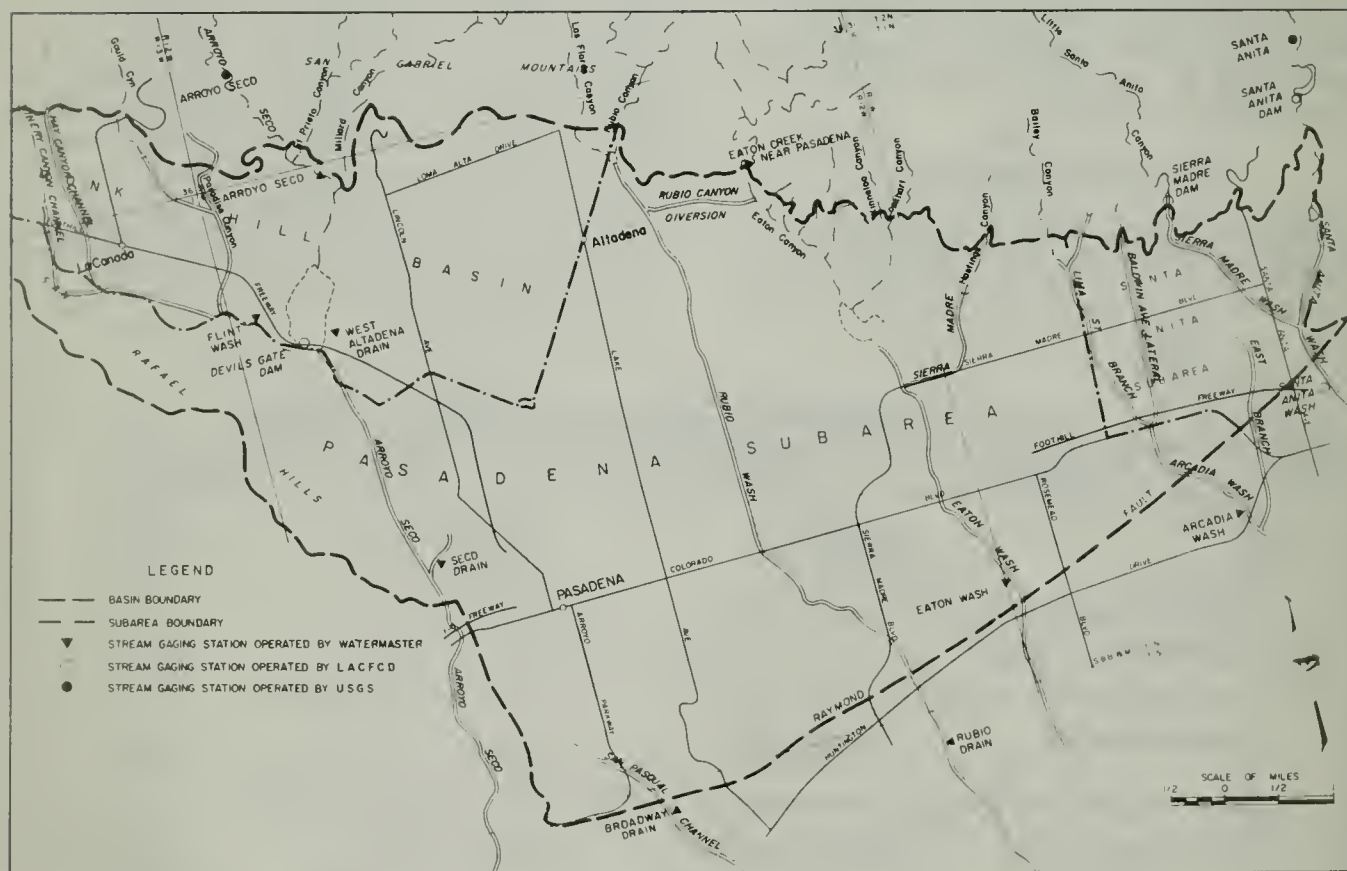
On January 17, 1974, the Court approved a Modification of the Judgment allowing parties having surface diversion rights to spread their diversions for future recapture by pumping from their wells. The program had begun on May 1, 1973. The parties electing to participate in this program are:

Kinneloa Irrigation District
Las Flores Water Company
Lincoln Avenue Water Company
City of Pasadena
Rubio Canon Land and Water
Association

The inception of the program and its implementation are discussed in Chapter 4.

Runoff

Thirteen stream-gaging stations are used to determine the volume of surface water moving through the Raymond Basin. The Watermaster operates nine and the LACFCD operates four (Figure 4). Appendix A summarizes information collected at stations operated by the Watermaster. The seasonal summary of "measured" flow at each gaging station appears in Table 4.



DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1975

Figure 4. STREAM-GAGING STATIONS

Table 4. RAYMOND BASIN RUNOFF

Watermaster Stream-gaging Stations		Flow, in acre-feet
No.	Name	
<u>Monk Hill Basin Flow into Devil's Gate Reservoir</u>		
62190	Flint Wash	1,303
62985	West Altadena Drain	<u>518</u>
TOTAL INTERNAL FLOW		1,821
<u>Inflow to Raymond Basin</u>		
62250	Arroyo Seco ^{a/}	669
	City of Pasadena Diversions	<u>2,275</u>
Subtotal		2,944
75360	Eaton Creek near Pasadena ^{a/}	1,674 ^{b/}
	Sierra Madre Dam ^{d/}	
^{c/}	Santa Anita Dam ^{a/}	<u>375</u>
TOTAL INFLOW		4,993
<u>Outflow from Raymond Basin</u>		
^{c/}	Devil's Gate Dam	747
62150	Seco Drain	1,270
75135	Broadway Drain	877
75220	Rubio Drain	4,481
75300	Eaton Wash	1,015
75450	Arcadia Wash	937
^{c/}	Santa Anita Wash	<u>251</u>
TOTAL OUTFLOW		9,578
^{a/} Includes water diverted to spreading ground within the basin.		
^{b/} City of Pasadena claimed 798.88 acre-feet for spreading credit.		
^{c/} Operated by Los Angeles County Flood Control District.		
^{d/} Discontinued		

Ground Water Elevations

During the past season, the Watermaster collected and processed data to determine prevailing ground water conditions in the Raymond Basin (Figures 5, 6, and 7).

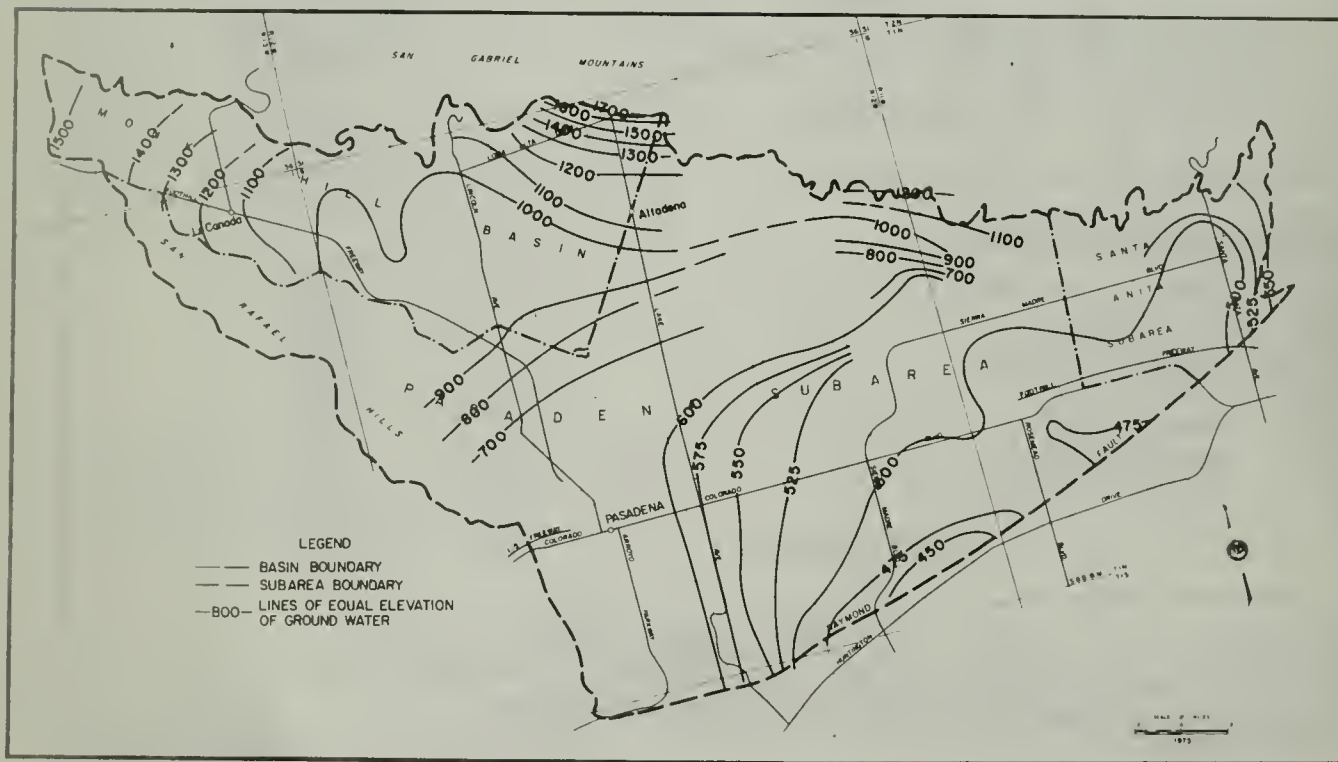
Figure 5 shows the elevations of the ground water table during the fall of 1974. Figure 6 represents the water table in the spring of 1975 at the end of the rainy season and shows the conditions resulting from the wet winter. Figure 7 shows the changes in elevation in the water table between the 1973 and 1974 fall seasons.

Hydrographs depicting historic ground water table fluctuations in selected wells in the Raymond Basin are shown in Figures 8, 9, and 10. The sites of these wells appear in Figure 12. Many more hydrographs are available for inspection in the Watermaster's Office.

Although the 1974-75 rainfall was below seasonal average, the hydrographs show some increase in water levels in the central portions of the Pasadena Subarea as a result of the spreading program by certain parties.

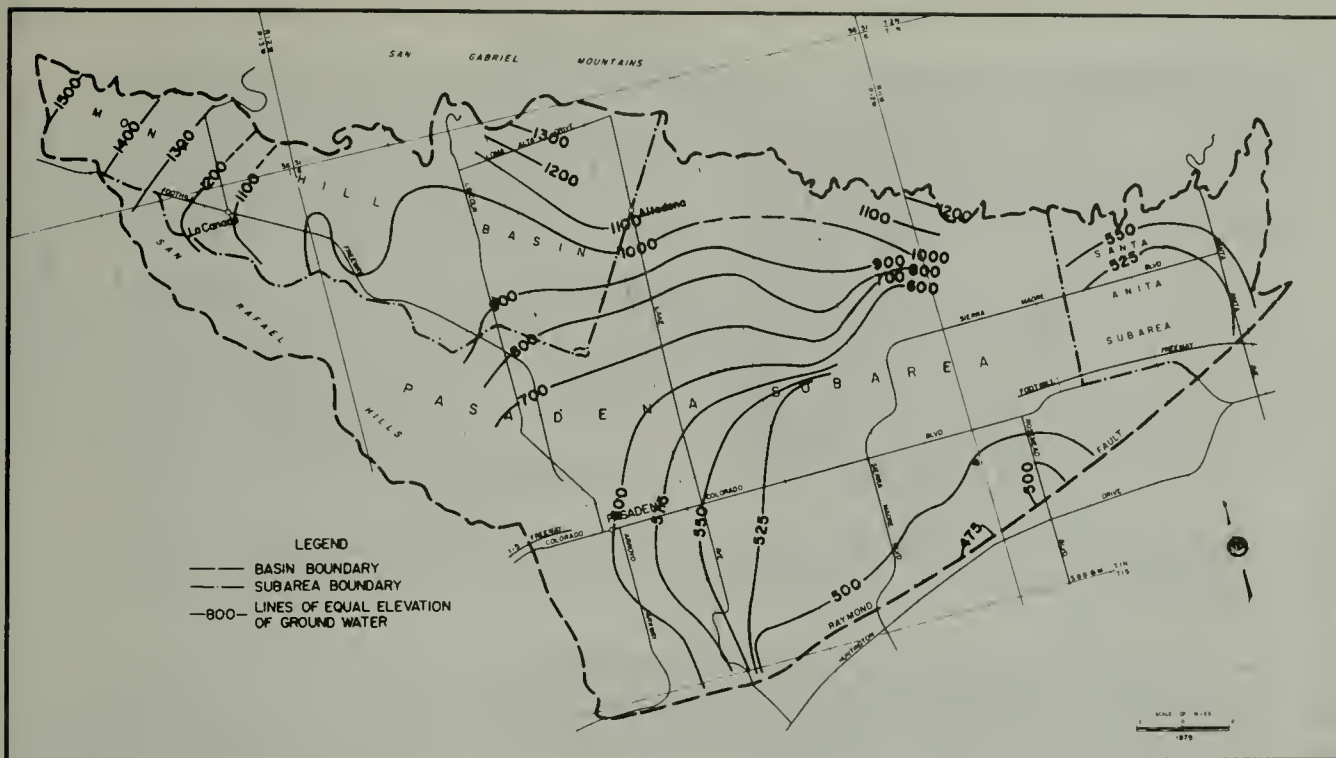
Pumping Limitations in the Eastern Unit

The water elevations of the City of Arcadia's Orange Grove wells govern the limitation of pumping in the Eastern Unit of the Raymond Basin. The limitation is imposed if the water surface at the Arcadia group of wells drops below an elevation of 500 feet above sea level. The limitation reduces the annual extraction from the Eastern Unit during the following season from 5,290 acre-feet to 3,261 acre-feet. Because the water surface was above the 500-foot limit during spring 1975, the limitation of pumping will not be in effect during the 1975-76 season.



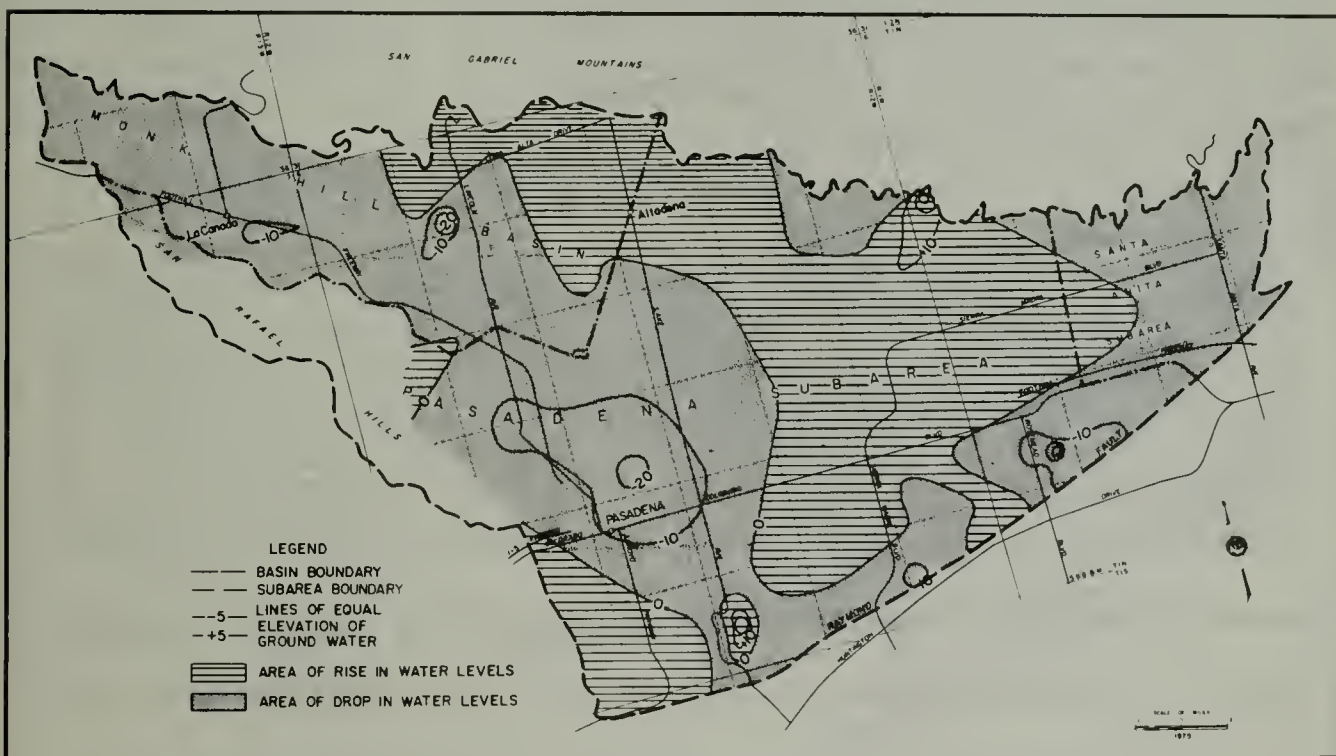
DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1975

Figure 5. LINES OF EQUAL ELEVATION OF GROUND WATER, FALL 1974



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Figure 6. LINES OF EQUAL ELEVATION OF GROUND WATER, SPRING 1975



DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1975

Figure 7. LINES OF EQUAL CHANGE OF GROUND WATER ELEVATION, FALL 1973 TO FALL 1974

ELEVATION OF WATER LEVELS AT WELLS IN FEET - U.S.G.S. DATUM

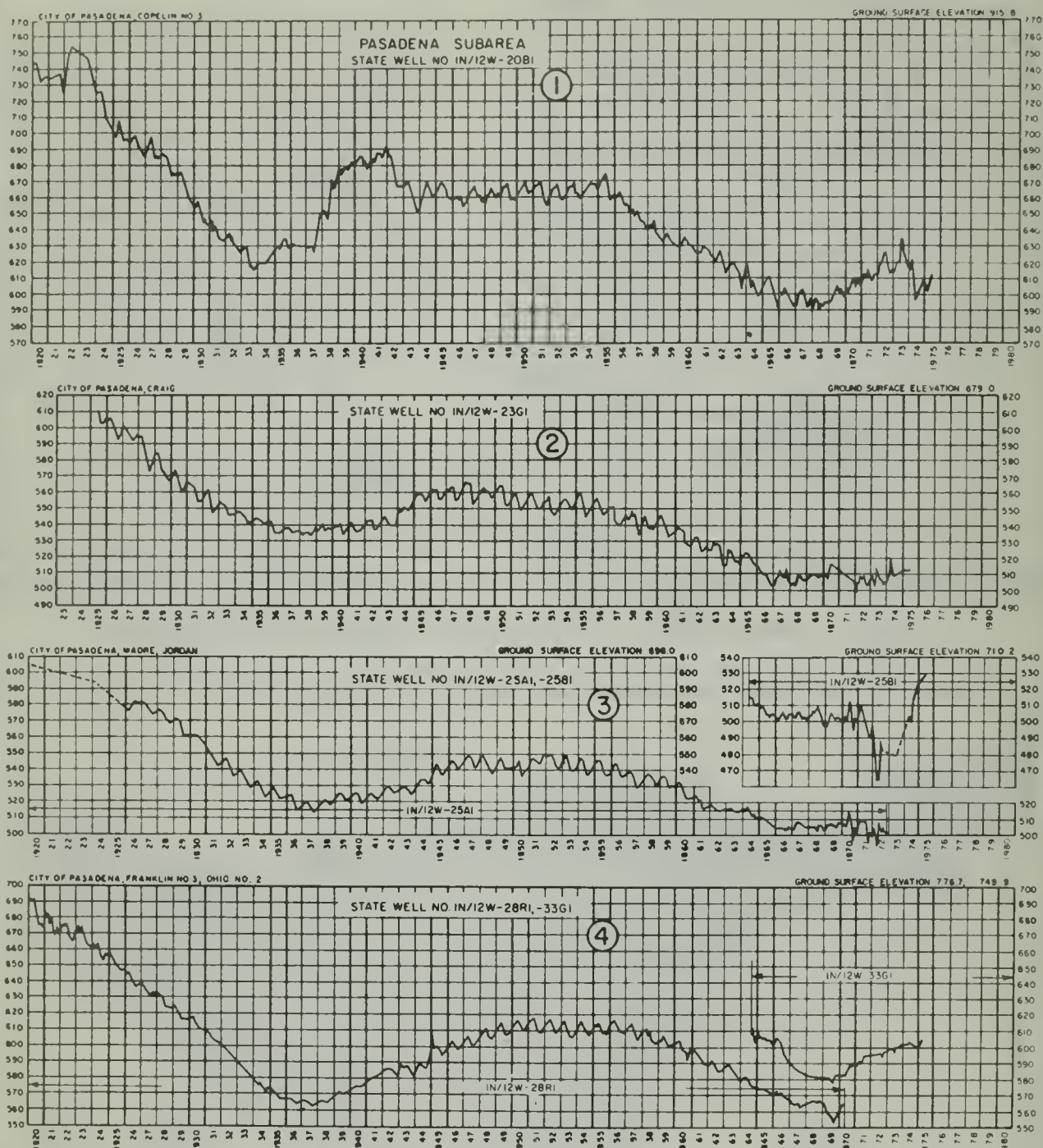


Figure 8 - FLUCTUATION OF WATER LEVELS AT WELLS IN THE PASADENA SUBAREA

ELEVATION OF WATER LEVELS AT WELLS IN FEET-U.S.G.S. DATUM

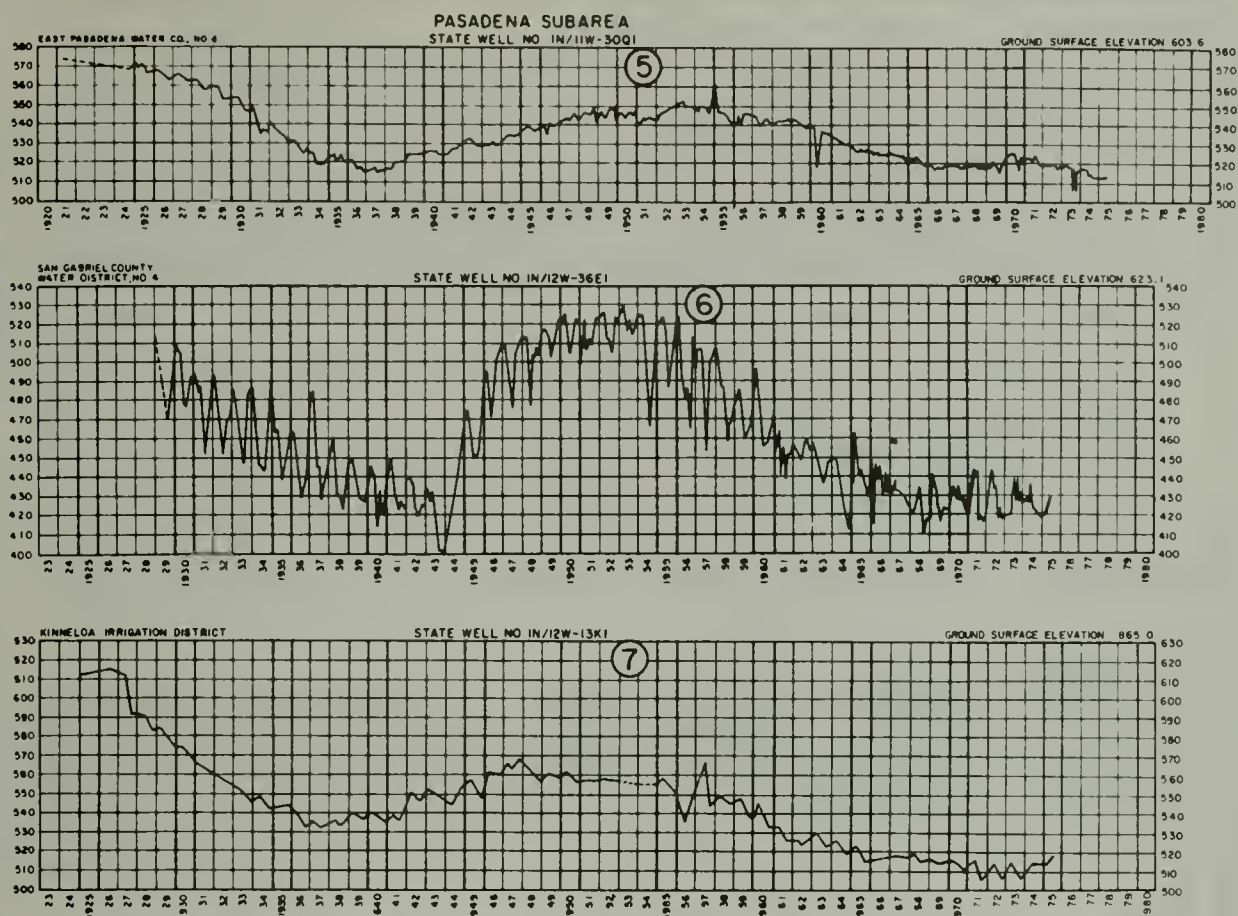
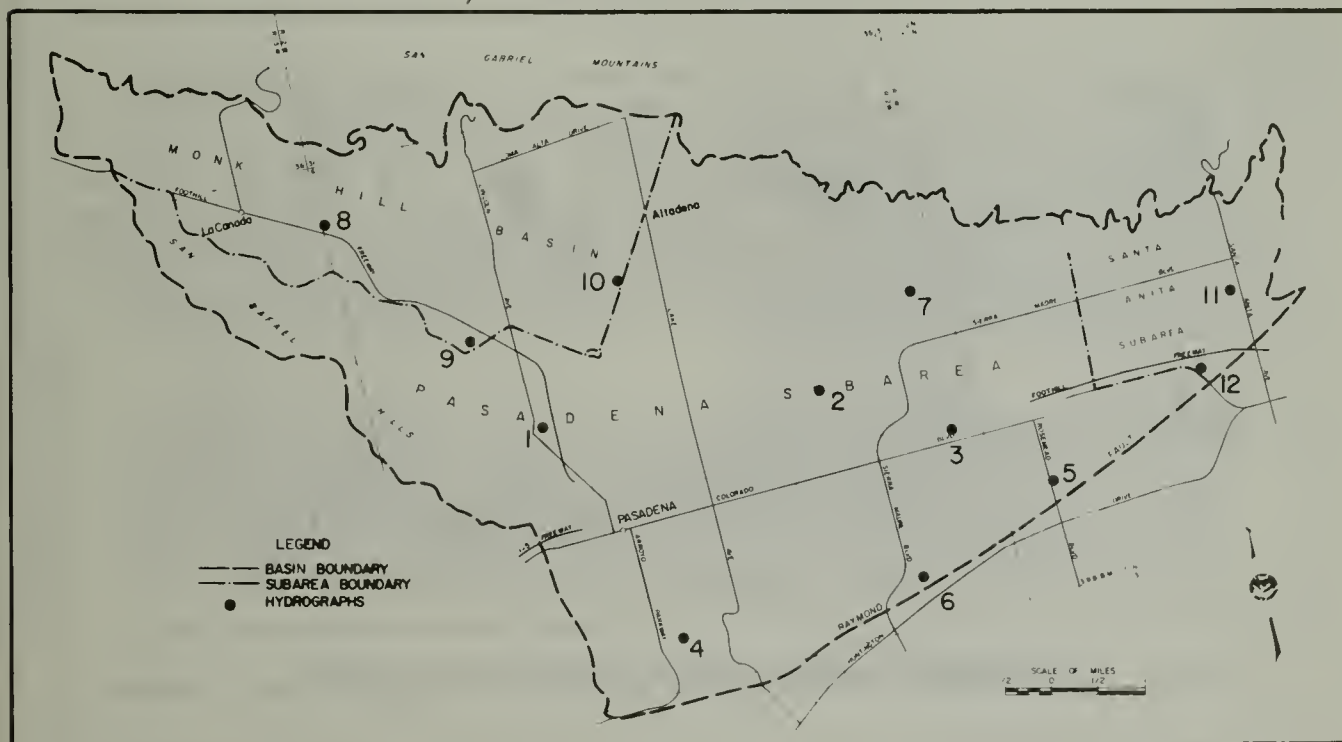


FIGURE 8 (Continued)



DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1975

Figure 8A. INDEX TO HYDROGRAPHS

ELEVATION OF WATER LEVELS AT WELLS IN FEET - U.S.G.S. DATUM

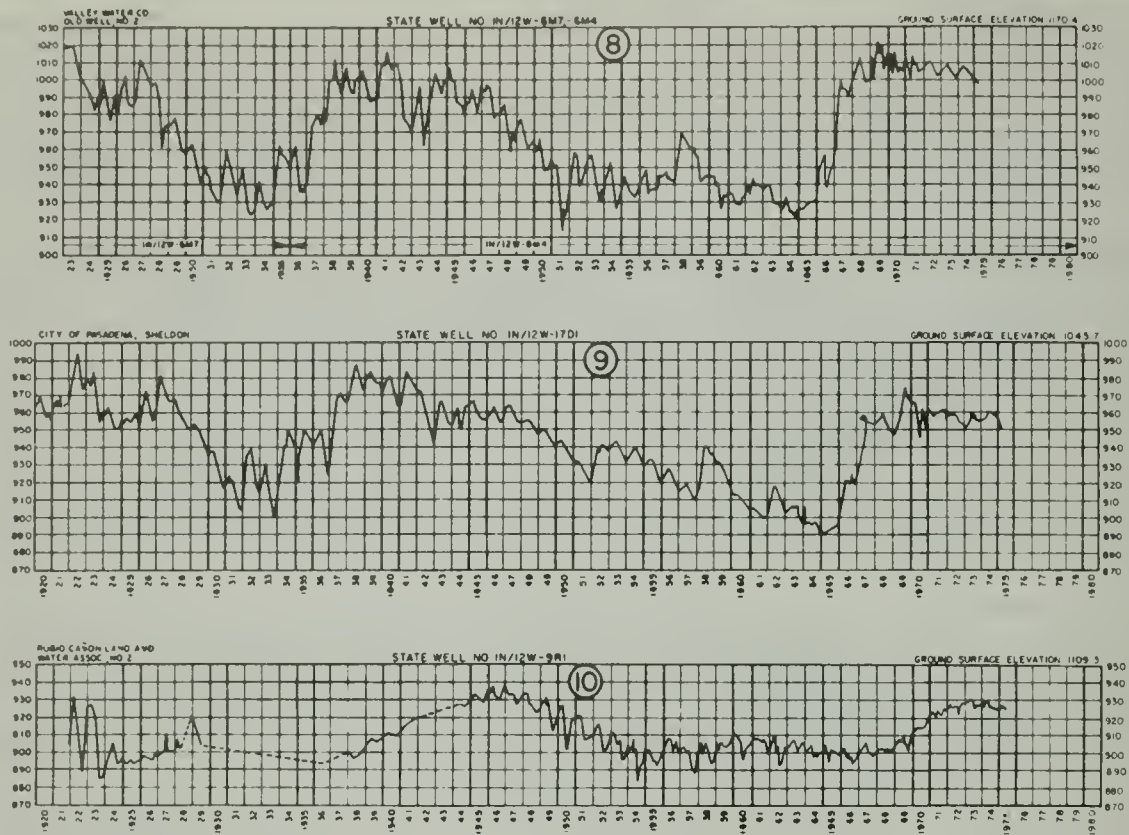


Figure 9- FLUCTUATION OF WATER LEVELS AT WELLS IN THE MONK HILL BASIN

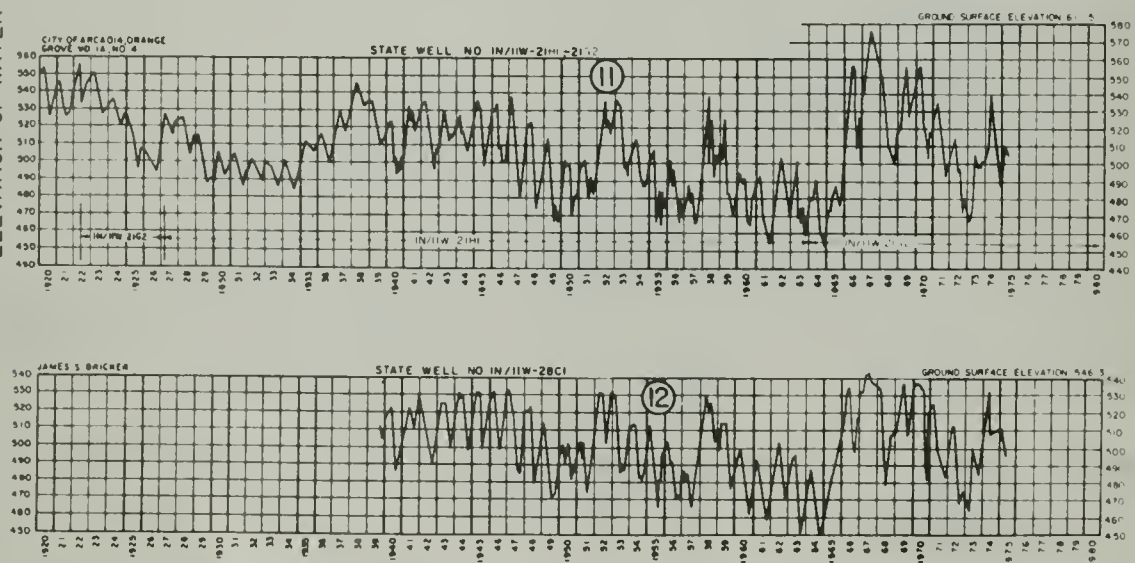


Figure 10 - FLUCTUATION OF WATER LEVELS AT WELLS IN THE SANTA ANITA SUBAREA

Water Well Numbering in the Raymond Basin

Each well in the Raymond Basin can be located by its State Well Number, a numbering system based on the U. S. Public Land Survey. Each number consists of township, range, and section number; a letter to identify the 40-acre tract in which the well is located; a sequence number to show the chronologic order in which the well was identified;

and a letter to represent the base and meridian. The letter "S" is sometimes omitted because all wells in the Raymond Basin are situated in relation to the San Bernardino base and meridian. The parts of State Well Number 1N/12W-25Q01S are illustrated in Figure 11.

In the 1974-75 season, the Raymond Basin contained 125 wells, 68 active, including 3 owned by two nonparties (Figure 12).

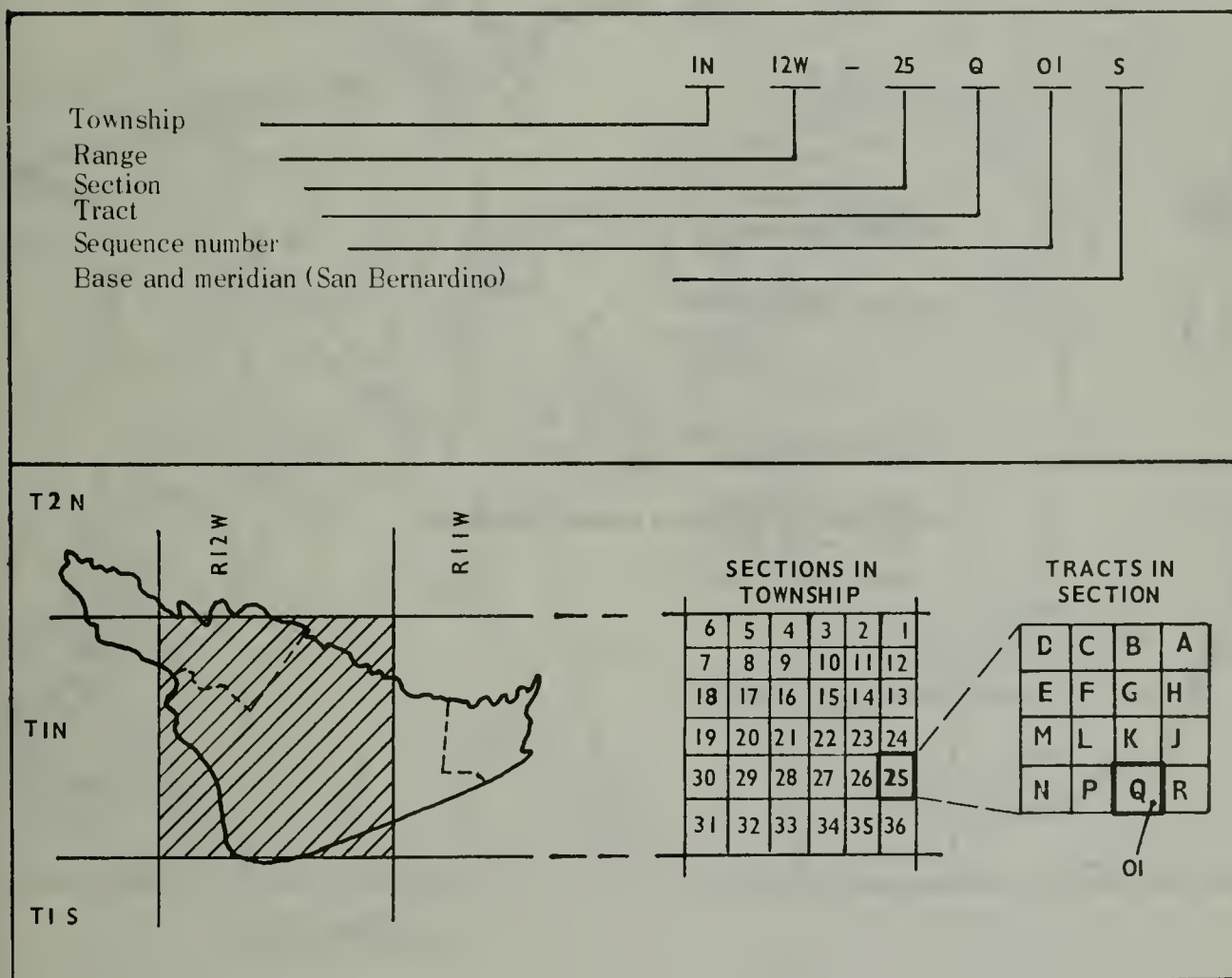


Figure 11. LOCATING STATE WELL NO. 1N/12W-25Q01S

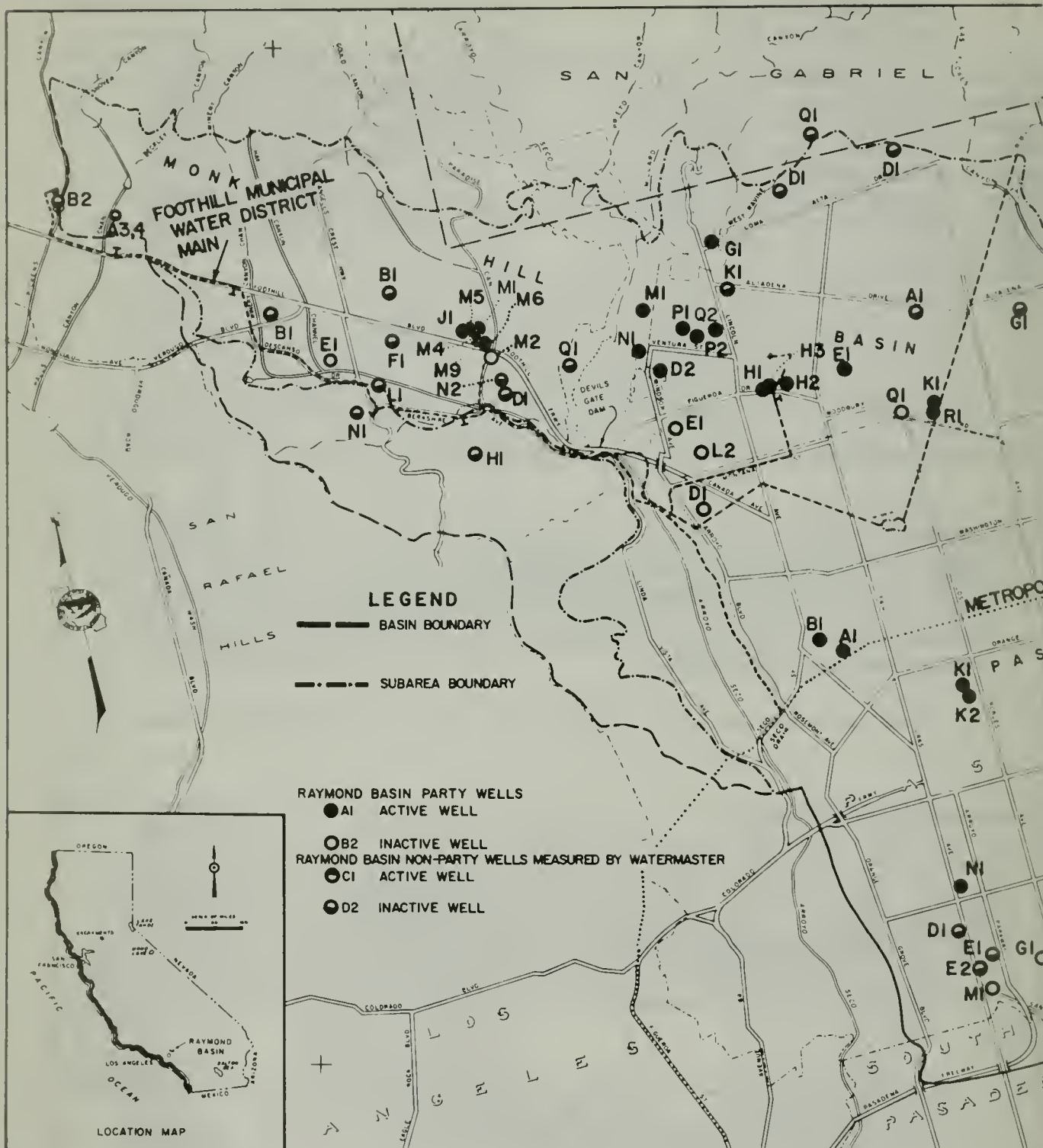
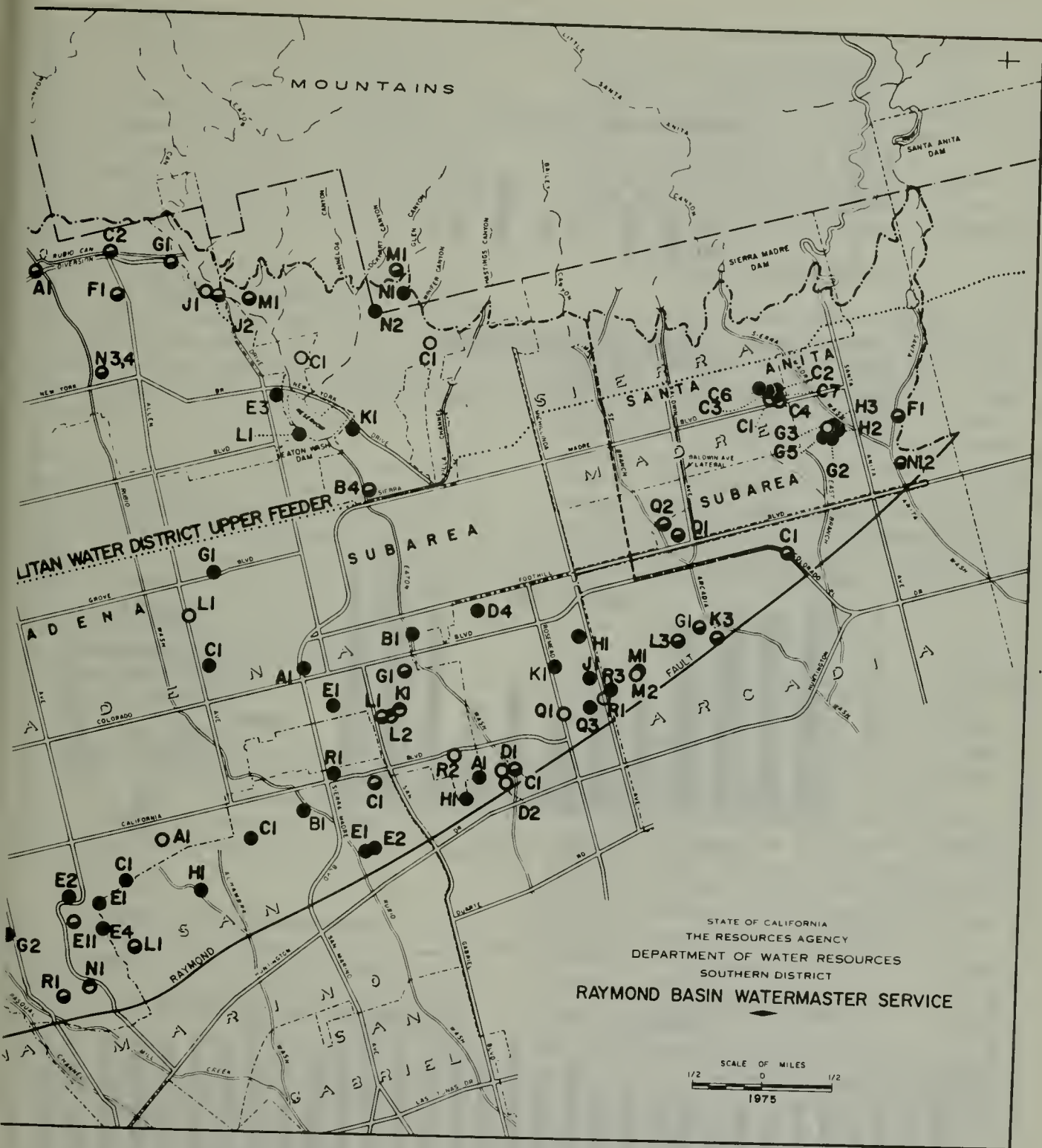


Figure 12



WELL LOCATIONS

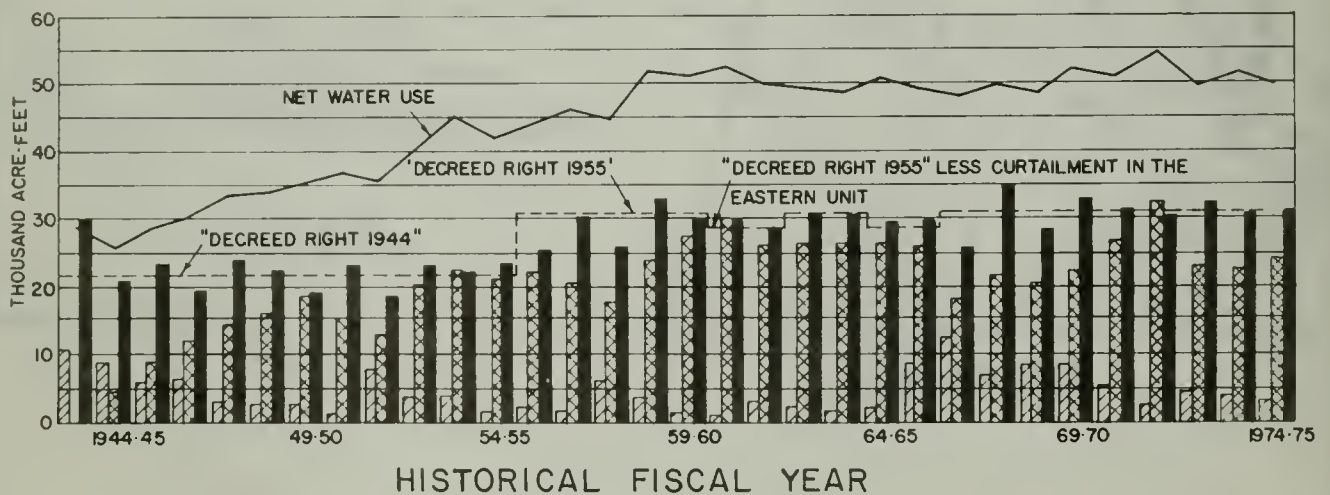
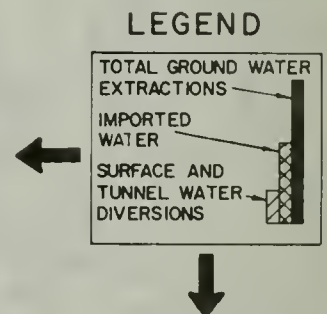
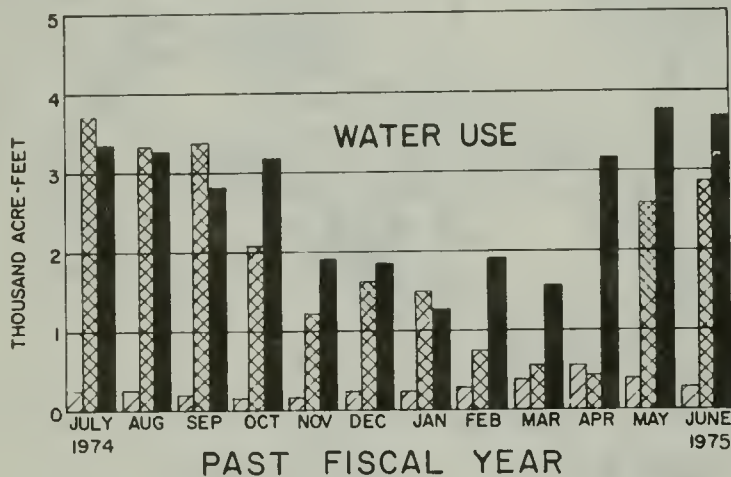
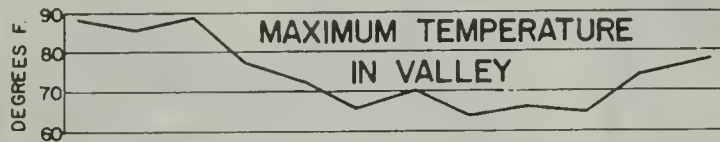
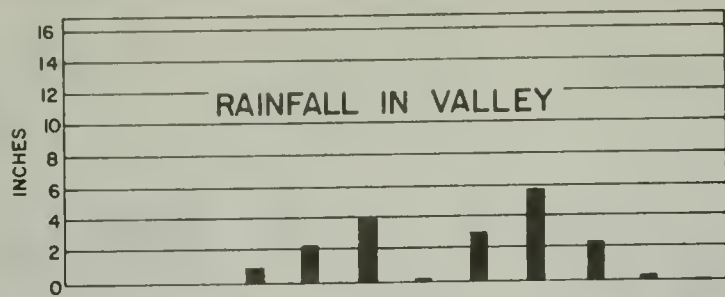


Figure 13. CLIMATIC CONDITIONS AND WATER USE

3. WATER USE

Net water use is the sum of ground water extractions, salvage water extractions (City of Sierra Madre), surface water diversions tributary to the Raymond Basin, and water imported to the Basin, minus the exports from the Basin. Water diverted for spreading is not included in net water use computations (Table 5).

Rapid population growth between 1944 and 1958 caused a substantial increase in net water use by parties. Despite greater population, use of local ground water has been held to the Decreed Rights since 1944. Population growth has leveled off since 1959.

Most of the increased water requirements have been met by Colorado River water imports. Historic water use and the correlation between current climatic conditions and monthly water use are shown in Figure 13. Rainfall values are based on valley station records and temperature values are based on the average temperatures in the Cities of Pasadena and Sierra Madre (Table 1).

The bar graphs in Figure 13 are striking proof that climate is one of the most important phenomena that regulate water use. For example, as rainfall increases and temperatures drop, water use declines.

Ground Water Extractions

The Raymond Basin Judgment limits the amount of ground water that each party can extract annually from the Basin or can release to the Water Exchange Pool for pumping by other parties. Recipients of exchange water may pump the amount released to them in addition to their "Decreed Right 1955".

The metered ground water production from each active well in the Basin is listed by party in Appendix B, which also shows the total production reported by each party.

The gross water supply includes all sources of water necessary to supply each party's total water requirement. A report on the gross water supply of all parties appears in Table 6. Several parties who extracted ground water from the basin adjacent to the Raymond Basin are also shown in Table 6.

Surface Water Diversion

The Judgment allows certain parties to divert surface water tributary to the Raymond Basin. Parties also divert and import nontributary surface water. Two types of diversions are used: surface and tunnel. Surface diversions collect surface water, such as streams or springs. Tunnel diversions collect subsurface water in either horizontal or vertical galleries. The water is diverted to a reservoir, treatment plant, service facility, or spreading grounds (Table 6).

Use of Imported Water

Colorado River water was first available to the City of Pasadena in June 1941. However, the City did not begin to use it continuously until June 1945. The amount imported during 1974-75 by each party connected with the Foothill Municipal Water District (FMWD) and by the City of Pasadena is shown in Table 6. The last week in May, FMWD began importing higher quality State Project water. This water is mixed with Colorado River water to become a 50-50 blend.

Ground Water Exports

The Watermaster assumes that parties with service areas both inside and outside the Basin export ground water only if their water sales in the Basin are less than the sum of water pumped, diverted, and purchased in the Basin. Since the City of Pasadena's supply comes from several sources, its total export contains Colorado River water, diverted surface water, and ground water (Table 6).

Table 5. DECREED RIGHT AND AMOUNT OF WATER EXTRACTED AND EXCHANGED
In acre-feet

Party	(1) "Decreed Right, 1955"	(2) Allowable carryover from 1973-74	(3) Spreading credit ^{a/}	(4) Net leases ^{b/}	(5) Allowable extraction (1)+(2)+(3)+(4)=(5)	(6) Amount extracted	(7) Balance (5)-(6)	(8) Allowable carryover into 1975-76 ^{c/}
WESTERN UNIT								
<u>Monk Hill Basin</u>								
La Canada Irrigation District	100.00	56.91 ^{d/}			156.91	154.03	2.88	2.88
Las Flores Water Company	249.00	14.53	22.28		285.81	272.45	13.36	13.36
Lincoln Avenue Water Company	567.00	11.88	503.18	+ 50.00	1,132.06	1,018.85	113.21	113.21 ^{e/}
Pasadena Cemetery Assoc.	91.00	42.87		- 50.00	83.87	77.02	6.85	6.85
Pasadena, City of	4,464.00	- 100.15	172.22		4,536.07	4,368.71	167.36	167.36
Rubio Canon Land and Water Assn.	1,221.00	122.10	121.72 ^{f/}		1,464.82	1,226.75	238.07	238.07 ^{e/}
Valley Water Company	797.00	- 1.47			795.53	768.08	27.45	27.45
Subtotals	7,489.00	146.67	819.40	0.00	8,455.07	7,885.89	569.18	569.18
<u>Pasadena Subarea</u>								
Alhambra, City of	1,031.00	376.36 ^{d/}		- 400.00 ^{g/}	1,007.36	871.48	135.88	63.10
Arcadia, City of	1,167.00	- 35.72			1,131.28	1,123.37	7.91	7.91
California-American Water Company	2,299.00	11.06			2,310.06	1,995.33	314.73	229.90
East Pasadena Water Co.	515.00	101.80 ^{d/}			616.80	576.56	40.24	40.24
H. E. Huntington Library and Art Gallery	262.00	- 11.65			250.35	322.54 ^{k/}	72.19	- 72.19
Kinneloa Irrigation Dist.	466.00 ^{h/}	484.63 ^{d/}	5.71	- 760.00 ^{g/}	196.34	195.61 ^{k/}	0.73	0.73
Monrovia, City of	951.00	43.95			994.95	905.29	89.66	89.66
Pasadena, City of	8,343.00	351.60	639.10	+1,160.00 ^{g/}	10,493.70	8,921.99	1,571.71	1,537.06 ^{e/}
Royal Laundry & Dry Cleaning Company	160.00 ^{l/}	- 12.96			147.04	143.72	3.32	3.32
San Gabriel County Water District	1,091.00	143.69			1,234.69	1,234.71	- .02	- .02
Sunny Slope Water Company	1,558.00	0.62			1,558.62	1,295.88	262.74	155.80
Subtotals	17,843.00	1,453.38	644.81	0.00	19,941.19	17,586.48	2,354.71	2,055.51
Totals - Western Unit	25,332.00	1,600.05	1,464.21	0.00	28,396.26	25,472.37	2,923.89	2,624.69
Recapitulation for City of Pasadena	12,807.00	251.45	811.32	+1,160.00	15,029.77	13,290.70	1,739.07	1,704.42
EASTERN UNIT								
<u>Santa Anita Subarea</u>								
Arcadia, City of	3,526.00	- 116.22		+1,000.00	4,409.78	4,413.33	- 3.55	- 3.55 ^{m/}
Sierra Madre, City of	1,764.00	0.00	5,477.75 ^{n/}	-1,000.00	6,241.75	1,924.98 ^{n/}	4,316.77	4,316.77 ^{m/}
Totals - Eastern Unit	5,290.00	- 116.22	5,477.75	0.00	10,651.53	6,338.31	4,313.22	4,313.22
GRAND TOTALS	30,622.00	1,483.83	6,941.96	0.00	39,047.79	31,810.68	7,237.11	6,937.91

a/ Unless noted, pursuant to modification of Judgment dated January 17, 1974, see Tables 3 and 8.

b/ See Appendix C and Table 10 for information concerning leases.

c/ Computation based on the modification of Judgment dated June 24, 1974. Where noted, includes spreading credit (footnote "e").

d/ Includes annual carryover credit pursuant to modification of Judgment dated June 24, 1974.

e/ Includes spreading credit. See footnote "a" and Table 12.

f/ Includes 0.96 acre-feet of spreading credit from 1973-74.

g/ Includes or transfers, wholly or partially, carryover flexibility right.

h/ Includes Decreed Right of Predecessors in interest (Total Decreed Right: 516.00 acre-feet), less 50 acre-feet released to the Exchange Pool. See Table 10.

i/ Includes annual carryover credit of predecessors in interest pursuant to modification of Judgment dated June 24, 1974.

k/ Includes extractions made by predecessors in interest. See Appendix A.

l/ Decreed Right (110.00 acre-feet) plus 50 acre-feet received from Exchange Pool

m/ Salvage credit. See Table 2.

n/ Includes 1,160.98 acre-feet of salvage credit pumped, which is not part of the safe yield.

Table 6. GROSS WATER SUPPLY
In acre-feet

Party	: Total ground water : : extractions :		: Total surface water diversions : : :		: Total water : : :		Net water use within the basin
	: Inside : basin :	: Outside : basin ^{a/} :	: Tributary to : Raymond Basin ^{b/} :	: Nontributary to : Raymond Basin ^{a/} :	: Imported ^{c/} :	: Exported :	
Alhambra, City of	871.48	(10,007.74)			-	871.48	0.00
Arcadia, City of	5,536.70	(8,035.92)			-	1,554.82	3,981.88
California-American Water Co.	1,995.33	(4,618.64)			186.05 ^{d/}		2,181.38 ^{e/}
Canyon Mutual Water Company ^{e/}	22.59 ^{e/}						22.59 ^{e/}
East Pasadena Water Company	576.56	(1,268.81)			-	185.13	391.43
Henry E. Huntington Library and Art Gallery	322.54						322.54
Kinneloa Irrigation District	133.55		244.70				378.25
La Canada Irrigation District	154.03			(137.09)	1,886.95 ^{g/}	- 395.70	1,645.28
Las Flores Water Company	272.45		58.13		429.97 ^{g/}		760.55
Lincoln Avenue Water Company	1,018.35				635.79		1,654.14
Mira Loma Mutual Water Company ^{e/}	39.47 ^{e/}		77.47 ^{f/}				116.94 ^{f/}
Monrovia, City of	905.29	(6,499.93)			-	905.29	0.00
Osborn Company ^{e/}	0.00						0.00
Pasadena Cemetery Association	77.02						77.02
Pasadena, City of	13,290.70		2,274.61		18,278.25 ^{g/}	- 5,203.65	28,639.91
Royal Laundry and Dry Cleaning Company	143.72						143.72
Rubio Canon Land and Water Association	1,226.75		97.16		801.49 ^{g/}		2,125.40
San Gabriel County Water District	1,234.71						1,234.71
Sierra Madre, City of	1,924.98 ^{h/}		528.63 ^{i/}				2,453.61
Sunny Slope Water Company	1,295.88	(2,748.80)				- 1,174.37	121.51
Valley Water Company	768.08				1,912.00 ^{g/}		2,680.08
TOTALS	31,810.18		3,280.70		24,130.50	- 10,290.44	48,930.94

^{a/} Used by parties in areas outside the Raymond Basin.

^{b/} Does not include surface diversions for spreading as follows: Kinneloa Irrigation District - 7.14 acre-feet; Las Flores Water Company - 27.85 acre-feet; Lincoln Avenue Water Company - 660.91 acre-feet; City of Pasadena (Eaton Canyon) - 798.88 acre-feet; (Arroyo Seco) - 217.29 acre-feet; Rubio Canon Land and Water Association - 150.95 acre-feet.

^{c/} Colorado River water except as noted.

^{d/} Imported ground water.

^{e/} Acquired by Kinneloa Irrigation District April, 1975.

^{f/} Amount through March, 1975.

^{g/} Includes 50-50 blend of Colorado River water and State Project water beginning May 30, 1975.

^{h/} Includes 1,161.0 acre-feet of salvage water that was extracted.

^{i/} Does not include 2,244.0 acre-feet diverted for spreading to recharge the ground water.

Nonparty Ground Water Extraction

Las Encinas Hospital
State Well No. 1N/12W-25K1
State Well No. 1N/12W-25L2

The Watermaster continues to monitor
nonparty ground water extractions.
Two nonparty pumpers in the Western
Unit continue to extract ground water:

52.54 acre-feet

Huntington-Sheraton Hotel
State Well No. 1N/12W-34N1

1.30 acre-feet

The Hotel extractions were estimated
by the plant engineer. The Hospital
based its water use on water-meter
readings.

Exports of Sewage

In the 1967-68 season, to measure sewage outflow, the Watermaster selected key stations on large sewage trunk lines from the Basin across the Raymond Fault and was granted temporary permission to install recorders at each. The next season, he installed F-type water stage recorders in 12 trunk lines for one week (Figure 14).

This program was repeated periodically and a trend of increasing outflow has been established. The increase is apparently commensurate with the cultural and population changes in the Basin.

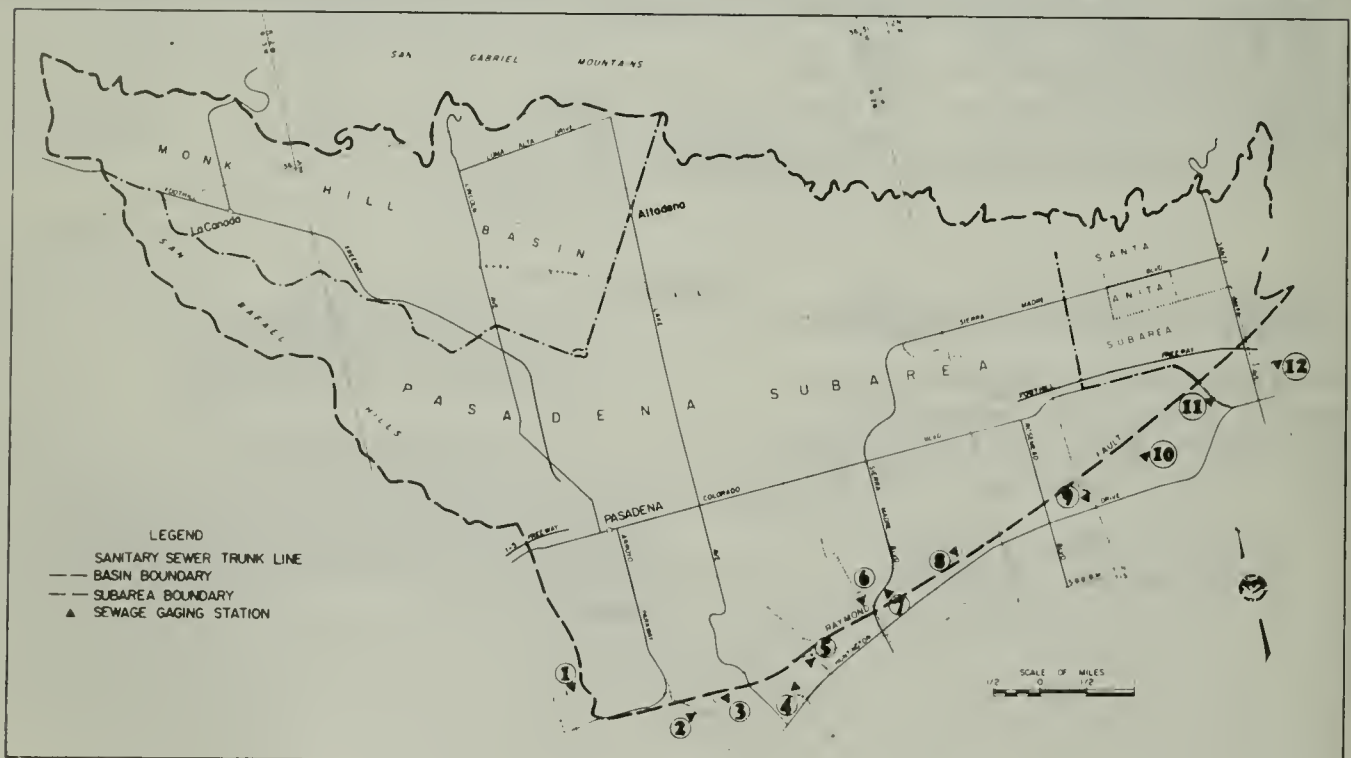
The following yearly outflows were computed: 1968-69 -- 20,321 acre-feet; 1970-71 -- 20,012 acre-feet; and 1972-73 -- 21,552 acre-feet.

Historic estimates include: 1938-39 -- 5,900 acre-feet; and 1951-52 -- 9,500 acre-feet.

The Watermaster presently proposes to make the next outflow measurements during the 1976-77 fiscal year.

Flow at Key Stations (1972-73)

Map code	Station	Acre-feet
1.	Grand Avenue	2,444
2.	Garfield Avenue	1,192
3.	Los Robles Avenue	2,064
4.	Old Mill Road	77
5.	Virginia Road	1,618
6.	San Marino Avenue	3,654
7.	Sierra Madre Blvd.	212
8.	N. Gainsborough St.	4,450
9.	Sunset Blvd.	3,875
10.	Old Ranch Road	214
11.	Colorado Place	596
12.	Colorado Blvd. at First Street	1,156
TOTAL		21,552



DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1975

Figure 14. SEWAGE-GAGING STATIONS

Water Quality

Quality is an important factor in water supply: The water must be fit for beneficial uses. Quantity and quality are interrelated variables that must be considered in water resources management. Water quality is a result of, and depends on, both natural and man-made phenomena.

The Basin's water need is supplied from local ground water, tunnel water, diverted surface water, and imported Colorado River water. This supply is of excellent quality and meets all standards for beneficial uses (Table 7).

Ground Water

The quality of the Basin's ground water is generally within the recommended limits set by the U.S. Public Health Service (USPHS) for drinking water standards. Except for a few wells

whose fluoride concentration is above 1.0 mg/l, it is of good mineral quality and suitable for most beneficial uses. The chemical character is largely calcium bicarbonate and ranges from soft to hard.

Tunnel Water

Several parties in the Basin use abandoned mines and tunnels for collecting seepage from mountain crevices. The chemical character of the water is similar to ground water (calcium bicarbonate) and ranges from soft to hard.

Surface Water

Surface water, though its direct use is restricted due to the increased use of the watershed by recreationists, still constitutes an important part of the Basin's supply. Its chemical character is calcium-bicarbonate and is moderately hard to hard.

Table 7. REPRESENTATIVE MINERAL ANALYSIS OF WATER

Well number or source	Date sampled	ECx10 ⁶ at 25°C	pH	Mineral constituents in Parts per million (ppm)											Total dissolved solids ppm	Total hardness as CaCO ₃ ppm
				Equivalents per million (epm)												
				Ca	Mg	Na	K	CO ₃	HCO ₃	SO ₄	Cl	NO ₃	F	B		
<u>IMPORTED WATER</u>																
Colorado River Water (MWD) at Pasadena Sunset Intake	8-13-74	1220	8.24	29.6 1.48	9.7 0.80	210.9 9.17	-	-	14.4 2.40	280.0 5.82	101.0 2.85	0.75 0.01	0.44 0.22	-	756	114
<u>SURFACE WATER</u>																
Arroyo Seco at John L. Behner Treatment Plant (raw)	12-10-74	446	8.25	50.4 2.52	15.6 1.23	19.7 0.86	-	-	219.6 3.60	23.5 0.46	10.5 0.30	6.1 0.10	0.85 0.05	-	286	190
<u>TUNNEL WATER</u>																
Los Flores Water Tunnel No. 8	7-17-75	432	7.7	58 2.91	10.8 0.89	23 1.00	1.2 0.03	-	172 2.82	74 1.54	8 0.23	0.4 0.03	3.0 0.16	-	276	190
<u>GROUND WATER</u>																
<u>Monk Hill Basin</u>																
1N/13W-01J01S La Canada Irrigation Dist. Well #6	1-14-75	437	7.5	5.0 2.54	14.7 1.21	25.0 1.09	1.8 0.05	-	204.0 3.35	17.0 0.35	25.0 0.71	6.3 0.45	0.3 0.02	-	296	188
<u>Pasadena Subarea</u>																
1N/11W-30H01 (Monrovia Chapman 6)	5-20-75	497	7.8	63.0 3.15	17.3 1.42	20.0 0.87	2.3 0.06	-	2.3 3.49	34.0 0.71	26.0 0.73	7.3 0.52	1.5 0.08	-	331	229
1N/12W-21K01 (Pasadena Garfield Well)	8-13-74	266	7.52	22.4 1.12	5.1 0.42	22.5 0.98	-	-	90.3 1.48	21.5 0.45	13.0 0.37	19.6 0.32	1.2 0.06	-	160	77
<u>Santa Anita Subarea</u>																
1N/11W-21C06 (Sierra Madre No. 5)	4-24-75	299	7.4	38.0 1.91	7.3 0.60	17.5 0.76	1.0 0.03	-	163.0 2.67	13.0 0.27	6.4 0.18	2.0 0.14	1.0 0.05	-	195	126

Imported Water

Untreated Colorado River water is predominately sodium-calcium sulfate in character and is very hard. After treatment to reduce hardness, it changes to sodium sulfate in character (Table 7). Samples taken between 1954 and 1974 at the City of Pasadena's Sunset turnout indicate a high TDS of 904 mg/l in January 1957 and a low of 596 mg/l in October 1958. The average TDS for the 20-year period is approximately 741 mg/l.

Areawide Water Quality Monitoring

In compliance with the Beilenson Health Act, the State Department of Health (SDH) on November 26, 1973, requested the Raymond Basin Advisory Board to formulate an areawide water quality monitoring program. On May 10, 1974, the Board authorized the Watermaster to prepare the program. In June, a draft was sent to SDH and the Board for review. The following month, SDH approved the program, and the Board accepted it at its December meeting.

Title 17, Part 1, Chapter 5 of the California Administrative Code defines the limits of concentration acceptable for domestic use. The monitoring program requires sampling all domestic water sources for mineral and physical constituents every five years; however, Colorado River water conveyed through MWD's facilities is excepted from this requirement. Sources from selected key locations will also have to be sampled

and tested every five years for trace elements, pollutants, pesticides, and herbicides. These key stations include five wells, two tunnels, and the three major tributary streams in the Basin.

Results of analyses obtained by the participants will be submitted to SDH through the Watermaster.

The monitoring program does not include analysis for radioactivity, carbon chloroform extract, and carbon alcohol extract. SDH will monitor such constituents in individual service areas on an as-required, case-by-case basis. Bacteriological monitoring of individual distribution systems are to be made by the individual water purveyors to comply with Article 3, Part 1, Chapter 5 of the California Administrative Code. Analysis of imported water will be made by MWD.

Land Use Study, 1973

A land use inventory of Coastal Los Angeles County, including the Raymond Basin, was conducted by DWR and was reported in the District Report "Coastal Los Angeles County Land-Use Study, 1973". The study, based on January and February 1973 aerial photography, was conducted from August 1973 to September 1974.

Water use is intimately associated with land use. Results from this study are extremely valuable to water planners. Detailed land use tabulations and the District Report are available for inspection in the Southern District office.

4. ADMINISTRATION OF THE JUDGMENT

The Raymond Basin Advisory Board, created by the Los Angeles County Superior Court, assists and advises the Watermaster on matters of policy and budgets.

To manage the Basin effectively, the Board initiated a cooperative water resources management study during fiscal year 1967-68. Begun under a March 21, 1968 agreement between DWR and the City of Pasadena representing all parties, the program's objective is the design of a mathematical model of the Basin to simulate the dynamic behavior of a ground water basin and surface water facilities under various operational plans. The Basin was divided into 79 subzones so that the ground water level information gained would be sufficiently detailed for long-range planning.

Before projections could be made, the model's accuracy had to be verified against historic hydraulic data. Numerous alternative plans for using ground and surface water together were then imposed on the model. With the data thus obtained, a wide range of operational and economic information is being gathered for management planning. The analysis was completed during the 1970-71 fiscal year and the findings of the investigation were published as DWR Bulletin No. 104-6, "Meeting Water Demands in the Raymond Basin Area", June 1971.

Court Actions

During the 1973-74 fiscal year, two modifications of the Raymond Basin Judgment were approved. The first, on January 17, 1974, adjudicates a plan for spreading and recapturing surface water diversions. The second, on June 24, 1974, incorporates the following elements: (1) a statement of the manner of disposal of accumulated carryover by specified parties in the Western Unit of the Basin; (2) a modification in the flexibility provisions for allowable pumping; (3) a program for the voluntary control of

pumping patterns in the Monk Hill Basin, Pasadena Subarea, and Eastern Unit; (4) a confirmation of the transfers and ownership of water rights; (5) the establishment of a water quality monitoring program for the Raymond Basin.

These modifications result from studies and agreements between the Watermaster, the Raymond Basin Advisory Board, and the parties to the Judgment. They are designed to respond to changing conditions in the Basin, incorporate refinements based on accumulated experience, and establish improved control techniques.

Metered Surface Diversions for Spreading

A special study, "Spreading Surface Water in the Raymond Basin Area", was completed by DWR in January 1973, using the mathematical model described earlier. The Advisory Board subsequently accepted the recommendations of the study and a program of spreading and recapturing surface water diversions was begun on May 1, 1973.

A "Motion to Modify Judgment to Allow Spreading and Recapturing by Pumping of Certain Surface Water Diversions" was prepared and presented to the Court for a hearing on November 9, 1973. No objections to the motion were made and the Judgment was modified and signed on January 17, 1974.

The modification includes a clause which allows the program to be effective retroactively to May 1, 1973. The Kinneloa Irrigation District and the City of Pasadena began their metered diversions for spreading on May 1, 1973; the Lincoln Avenue Water Company and Rubio Canon Land and Water Association, on June 1, 1973; and Las Flores Water Company, on January 3, 1974. Each of the surface diversion facilities and metering devices has been inspected and approved by the Watermaster. The facilities will be inspected every two months to certify their proper operation.

In accordance with the Modification of the Judgment, the Watermaster will determine the amount of water diverted for spreading and LACFCD will certify the amount spread. Parties will be allowed to extract 80 percent of the amount spread and certified. A summary of the amounts spread and certified during fiscal year 1974-75, together with the amounts available for recapture and amounts recaptured is shown in Table 8. Figures shown in Table 8 have been incorporated into Table 5 and their certification shown in Appendix C.

Carryover of the Decreed Right

The Judgment prohibited annual extractions from the Raymond Basin exceeding 120 percent of the "Decreed Right 1955", plus or minus exchange water.

It also provided that the total amount pumped or taken by any party in any 60 consecutive months could not exceed the amount released to it by the Exchange Agreement and five times the Party's Decreed Right.

There has been substantial agreement that this accounting procedure is difficult to manage and causes occasional misunderstanding of the manner in which allowed pumping rights could be carried over from one accounting year to the next.

Meetings were held between the Watermaster, Advisory Board, and interested parties at which new carryover and accounting procedures were adopted as part of a motion to modify the Judgment. The motion was heard by the Court on June 24, 1974. No objections were filed, so motion was granted and the modification of the Judgment was entered on June 24, 1974. It states: "... a party may exceed its Decreed Right to the extent that it has acquired ... the Decreed Right of any other party or as may become necessary in the case of emergency or for other reasonable cause as determined by the Watermaster ... parties to this action may take in any twelve-month period beginning July 1, ... an amount not exceeding one hundred ten percent (110%) of its Decreed Right ... plus

Table 8. SUMMARY OF CREDIT FOR SPREADING DIVERSIONS OF SURFACE WATER
In acre-feet

Party	1973-74				1974-75				
	Diverted	Spread	Credit	Extracted	Diverted	Spread	Credit	Extracted	Balance
Kinneloa Irrigation Dist.	8.27	8.27	6.62	6.62	7.14	7.14	5.71	5.71	0
Laa Flores Water Company	41.38	41.38	33.10	33.10	27.85	27.85	22.28	22.28	0
Lincoln Avenue Water Co.	641.71	611.26	489.01	489.01	660.91	628.98	503.18	446.67	56.51
Pasadena, City of Monk Hill Basin	525.28	503.84	403.07	403.07	217.29	215.27	172.22	172.22	0
Pasadena Subarea	1,026.58	1,026.58	821.26	821.26	798.88	798.88	639.10	0.00	639.10
Rubio Canon Land and Water Association	201.04	201.04	160.83	159.87	150.95	150.95	120.76	5.75	115.97 ^{a/}
TOTALS	2,444.26	2,392.37	1,913.89	1,912.93	1,863.02	1,829.07	1,463.25	652.63	811.58

^{a/} Includes 0.96 acre-feet of spreading credit from 1973-74.

any amount of allowable underpumping ... If a party in any twelve-month period, beginning July 1, takes less than its Decreed Right, or less than the amount allowed after reduction for any excess extractions, the amount of such underpumping, but not exceeding ten percent (10%) of its Decreed Right, may be carried over and taken during the next succeeding year."

Those provisions became effective in the 1974-75 fiscal year.

The modification of Judgment also provides for the manner of disposal of the accumulated carryover by specified parties in the Western Unit. These parties may withdraw the amounts below each year for the next five years, commencing in the 1973-74 fiscal year.

These amounts shall be in addition to their Decreed Rights.

<u>Name of Party</u>	<u>Annual carryover credit, in acre-feet</u>
Alhambra, City of	260.4
Canyon Mutual Water Co.	133.0
East Pasadena Water Co.	173.4 ^{a/}
Kinneloa Irrigation Dist.	390.4 ^{a/}
La Canada Irrigation Dist.	57.6

^{a/}Includes annual carryover credit of Mira Loma Mutual Water Co. and Osborn Co. of 106.0 acre-feet and 55.8 acre-feet, respectively.

Pumping Patterns

To prepare the "Report on the Control of Ground Water Levels in the Raymond Basin by Means of Adjusting Pumping Patterns," the Raymond Basin Advisory Board organized a committee whose membership includes the Watermaster, the City of Pasadena, and the parties to the Judgment.

Based on recommendations in the Report, Paragraph 5 of the Modification of Judgment requires the Watermaster to study pumping patterns in the Basin and report his recommendations to the Advisory Board not less than twice each year. The recommendations will include advice as to whether more or less water should be pumped from areas of influence and will be calculated to: (a) minimize interference among parties; (b) conserve energy, expense, and local water supplies; and (c) provide most efficient, equitable use of ground water. The recommendations will recognize the right of each party to pump its Decreed Right, but is advisory only. The success of the program is dependent on the voluntary cooperation of the parties to the Judgment.

On May 23, 1975, the first of these semiannual reports was mailed to all parties in the Raymond Basin. In summary, the report recommended the same or less pumping in all areas. The only exception was the Monk Hill Basin where more pumping was recommended due to the key well showing a consistent tendency for the level to approach the maximum recommended level.

Exchange Pool

The Exchange Water Agreement, authorized by the Court, permits the exchange and use of water rights among all parties to the agreement. Participation in the Exchange Agreement is open to all parties to the agreement.

The Exchange Agreement was useful during the early years subsequent to the Court's Judgment when only Pasadena had access to Colorado River water. However, at present six parties use Colorado River water and fewer water

rights need be exchanged. The history of Exchange Pool transactions appears in Table 9.

"Watermaster Service in the Raymond Basin - General Information Policies and Procedures", January 1, 1975.

Overextractions

Table 9. EXCHANGE WATER POOL TRANSACTIONS

Season	Quantity of water purchased, in acre-feet				Average cost, per acre-foot	
	Western Unit		Eastern Unit		Western Unit	Eastern Unit
	Monk Hill Basin	Pasadena Subarea	Santa Anita Subarea	Raymond Basin Area		
1944-45	925	53	0	978	\$ 29.88	
45-46	550	82	600	1,232	17.49	4.00
46-47	2,750	64	300	3,114	29.39	4.00
47-48	3,150	142	0	3,292	29.88	
48-49	5,150	115	0	5,265	32.16	
49-50	3,782	160	300	4,242	34.77	15.00
1950-51	3,938	96	700	4,734	31.82	15.00
51-52	3,929	100	0	4,029	35.55	15.00
52-53	3,929	72	0	4,001	31.62	
53-54	3,929	67	0	3,996	35.29	
54-55	3,929	215	0	4,144	34.35	
55-56	2,850	41	0	2,891	34.14	
56-57	1,700	10	0	1,710	27.89	
57-58	1,050	0	0	1,050	26.67	
58-59	0	70	0	70	20.00	
59-60	0	45	0	45	25.00	
1960-61	0	25	0	25	20.00	
61-62	0	40	600	640	18.00	31.00
62-63	0	25	0	25	17.00	
63-64	0	30	0	30	17.00	
64-65	0	35	200	235	17.00	64.55
65-66	0	25	300	325	17.00	37.58
66-67	0	0	0	0		
67-68	0	10	0	10	10.00	
68-69	0	40	0	40	25.00	
69-70	0	50	0	50	25.00	
1970-71	0	40	0	40	25.00	
71-72	0	45	0	45	25.00	
72-73	0	45	0	45	35.00	
73-74	0	45	0	45	35.00	
74-75	0	50	0	50	35.00	
TOTALS	41,561	1,837	3,000	46,398		

Each April, the Watermaster mails an Exchange Pool form to all parties, opening the Pool to inter-member water right leasing. This year, the Royal Laundry and Dry Cleaning Co. leased 50 acre-feet for \$35 per acre-foot from the Kinneloa Irrigation District at a cost of \$1,750.

Transfers of Decreed Right

Another method of obtaining additional pumping rights is by lease or sale between parties. Table 10 lists the transactions, parties, and amounts involved for 1974-75.

Samples of our recommended lease and sale agreements are included in the

In restricting ground water extractions from the Raymond Basin, it is recognized that there are unavoidable fluctuations in water use from year to year. To allow for this, a flexibility clause is included in the June 1974 Modification of Judgment which allows each party to vary its extractions within stated limits.

Essentially, it permits a party to overextract or underpump as much as 10 percent of its Decreed Right, 1955, with the equivalent debit or credit being applied to its extraction in the subsequent water year.

Table 11 summarizes all overextractions and violations of the Judgment based on the Modification.

The H. E. Huntington Library and Art Gallery requested permission to exceed the permissible overextraction limit and the Watermaster approved. For this reason, it is not in violation of the Judgment.

Allowable Extractions in 1975-76

Table 12 summarizes the allowable extractions for all parties for the 1975-76 water year. It incorporates the carryover as calculated under the method before the June 24, 1974, Modification of Judgment. The new method provided by the Modification of Judgment has been used this year.

Allowable extractions are a part of a dynamic process; the figures shown in Table 12 are those amounts which are correct at the beginning of the water year. Allowable extractions can become larger or smaller in 1975-76, in accordance with as-yet indeterminate factors, i.e., sales, leases, and spreading credit.

Table 10. TRANSFERS OF DECREED RIGHT, 1955

In acre-feet

Party	Transaction and amount in acre-feet			Party
<u>Monk Hill Basin</u>				
Pasadena Cemetery Assoc.	Leased	50.00	to	Lincoln Ave. Water Co.
<u>Pasadena Subarea</u>				
Alhambra, City of	Leased	400.00	to	Pasadena, City of
Canyon Mutual Water Co.	Sold	127.00	to	Mira Loma Mutual
Kinneloa Irrig. Dist.	Leased	760.00	to	Pasadena, City of
Mira Loma Mutual	Sold	287.00	to	Kinneloa Irr. Dist.
Osborn Company	Sold	12.00	to	Mira Loma Mutual
<u>Santa Anita Subarea</u>				
Sierra Madre, City of	Leased	1,000.00	to	Arcadia, City of

Table 11. OVEREXTRACTIONS

In acre-feet

Party	(1) "Decreed Right, 1955"	(2) Allowable carryover from 1973-74	(3) Spreading credit and net leases	(4) Allowable extraction (1)+(2)+(3)=(4)	(5) Amount extracted	Overextraction		
						(6) Amount (4)-(5)=(6)	(7) Allowable ^a / (104)(1)=(7)	(8) In Percent (6)+(1) 100=(8)
<u>Pasadena Subarea</u>								
H. E. Huntington Library and Art Gallery	262.00	- 11.65	0.00	250.35	322.54	- 72.19	26.20 ^{b/}	27.55
San Gabriel County Water District	1,091.00	143.69	0.00	1,234.69	1,234.71	- .02	109.10	.00
<u>Santa Anita Subarea</u>								
Arcadia, City of	3,526.00	- 116.22	1,000.00	4,409.78	4,413.33	- 3.55	352.60	.10
TOTAL	4,879.00	15.82	1,000.00	5,894.82	5,970.58	- 75.76	487.90	
<u>a/</u> Based on modification of Judgment dated June 24, 1974.								
<u>b/</u> Party requested permission to exceed permissible overextraction limit and Watermaster approved that request. Party is not in violation of Judgment because of this approval.								

^a/Based on modification of Judgment dated June 24, 1974.^b/Party requested permission to exceed permissible overextraction limit and Watermaster approved that request. Party is not in violation of Judgment because of this approval.

Table 12. ALLOWABLE EXTRACTIONS IN 1975-76

In acre-feet

Party	Decreed Right, 1955	Carryover from 1974-75		Allowable extraction ^{a/}
		Decreed Right	Spreading Credit	
Alhambra, City of	1,031.00	323.50 ^{b/}		1,354.50
Arcadia, City of				
Pasadena Subarea	1,167.00	7.91		1,174.91
Santa Anita Subarea	3,526.00	- 3.55		3,522.45
California-American Water Co.	2,299.00	229.90		2,528.90
East Pasadena Water Company	515.00	213.64 ^{b/}		728.64
H. E. Huntington Library				
and Art Gallery	262.00	-72.19		139.81
Kinneloa Irrigation District	466.00 ^{c/}	524.13 ^{b/}		990.13
La Canada Irrigation District	100.00	60.48 ^{b/}		160.48
Las Flores Water Company	249.00	13.36		262.36
Lincoln Avenue Water Company	567.00	56.70	56.51	680.21
Monrovia, City of	951.00	89.66		1,040.66
Pasadena Cemetery Association	91.00	6.85		97.85
Pasadena, City of				
Monk Hill Basin	4,464.00	167.36		4,631.36
Pasadena Subarea	8,343.00	897.96	639.10	9,880.06
Royal Laundry and				
Dry Cleaning Company	160.00 ^{b/}	3.32		163.32
Rubio Canon Land & Water				
Association	1,221.00	122.10	115.97	1,459.07
San Gabriel County Water				
District	1,091.00	- .02		1,090.98
Sierra Madre, City of	1,764.00	0.00	4,316.77 ^{d/}	6,080.77 ^{d/}
Sunny Slope Water Company	1,558.00	155.80		1,713.80
Valley Water Company	797.00	27.45		824.45
TOTAL	30,622.00	2,824.36	5,128.35	38,574.71

^{a/} Does not include 1975-76 sales and leases of water right and spreading credit.

^{b/} Includes accumulated carryover as provided by Modification of Judgment of June 24, 1974.

^{c/} Includes Exchange Pool transactions.

^{d/} Includes spreading credit which varies each month.

Variations from Safe Yield

Table 13 summarizes annual extractions from 1950-51 to the present and compares average annual extractions with safe yield. At present, average annual extractions in each subarea are less than safe yield, due to six years of

above-average precipitation during the last 19 years. However, the second lowest precipitation of record during 1971-72 and below average for the period 1969-72 and 1973-74 have increasingly narrowed the gap between extraction and safe yield.

**Table 13. VARIATION OF ANNUAL
EXTRACTIONS FROM SAFE YIELD**
In acre-feet

July 1 through June 30	Annual extractions				
	Western Unit		Subtotal	Eastern Unit ^{a/}	Raymond Basin Area
	Monk Hill Basin	Pasadena Subarea			
1950-51	7,098	13,418	20,516	2,861	23,377
51-52	5,903	10,750	16,653	2,041	18,694
52-53	5,973	12,471	18,444	4,535	22,979
53-54	6,283	11,765	18,048	4,163	22,211
54-55	<u>6,420</u>	<u>12,783</u>	<u>19,203</u>	<u>4,399</u>	<u>23,602</u>
Average annual extractions	6,363	11,683	18,046	3,639	21,685
Safe yield 1938 ^{b/}	6,039	11,621	17,660	3,791	21,451
Average difference ^{c/}	+ 324	+ 62	+ 386	- 152	+ 234
1955-56	6,319	14,060	20,379	4,687	25,066
56-57	7,057	17,474	24,531	5,685	30,216
57-58	5,916	16,054	21,970	3,823	25,793
58-59	8,160	18,027	26,187	7,018	33,205
59-60	7,992	16,428	24,420	4,858	29,278
1960-61	7,141	18,796	25,937	3,342 ^{d/}	29,279
61-62	6,742	18,419	25,161	3,496 ^{d/}	28,657
62-63	8,084	16,630	24,714	5,268	29,982
63-64	7,937	17,469	25,406	4,778	30,184
64-65	7,450	17,682	25,132	3,599 ^{d/}	28,731
65-66	6,583	19,397	25,980	3,388 ^{d/}	29,368
66-67	5,096	17,241	22,337	3,369	25,706
67-68	7,059	19,984	27,043	7,031	34,074
68-69	8,397	15,490	23,887	4,511	28,398
69-70	8,422	18,710	27,132	5,445	32,577
1970-71	8,287	17,091	25,378	5,612	30,990
71-72	7,408	17,359	24,767	5,794	30,561
72-73	9,217	17,331	26,548	5,801	32,349
73-74	8,408	18,415	26,823	4,929	31,752
74-75	7,886	17,586	25,472	6,338	31,810
Average annual extractions	7,478	17,482	24,960	4,939	29,899
Safe yield 1952 ^{e/}	7,489	17,843	25,332	5,290	30,622
Average difference ^{c/}	-11	-361	-372	-351	-723

^{a/} Excludes salvaged water pumped by City of Sierra Madre.
^{b/} Effective 1944-45 through 1954-55 and excludes nonparty pumpage
^{c/} Extractions greater than safe yield: (+).
Extractions less than safe yield: (-).
^{d/} Reduction in extraction by order of Watermaster.
^{e/} Effective 1955-56 through present and excludes nonparty pumpage.

5. ADMINISTRATIVE COSTS

Under the provisions of Section 4201, California Water Code, the cost of Watermaster service is shared equally by the State and the parties to the Judgment.

Before each December 15, the Watermaster, in cooperation with the Raymond Basin Advisory Board prepares the budget for the fiscal year, beginning on July 1. The 1974-75 budget, approved by the Board on December 17, 1973, is shown in Table 14.

The Raymond Basin budget contains three sections (Table 15): Part A supports the cost of administering the Raymond Basin Judgment. Each party's share of that cost is directly proportionate to the party's Decreed Right, 1955;

Table 14. APPROVED BUDGET FOR 1974-75

PART "A" - Cost other than Part "B" and Part "C"	
Salaries and wages	\$26,701
Operating expenses	4,250
Retirement and compensation plus administration	6,759
Total Amount	\$37,710
One-half payable by State	\$18,855
One-half payable by parties	18,855
Less estimated carryover from 1973-74	0
Total collectable from parties	\$18,855
PART "B" - Cost of Exchange Water Program	
Salaries and wages	\$ 80
Retirement and compensation plus administration	20
Total Amount	\$ 100
One-half payable by the State	\$ 50
One-half payable by participants in release and receipt of water	50
PART "C" - Cost of Determining Spreading Credits	
Salaries and wages	\$ 1,760
Operating expenses	100
Retirement and compensation plus administration	440
Total Amount	\$ 2,300
One-half payable by the State	\$ 1,150
One-half payable by participants spreading and recapturing surface water diversions	1,150
TOTAL ESTIMATED COST OF Watermaster Service July 1, 1974 through June 30, 1975	\$40,110

Table 15. APPORTIONMENT OF 1974-75 BUDGET

Party	PART A		PART B		PART C	
	"Decreed Right 1955"	Apportionment to be paid	Exchange Pool Water	Amount paid	Diversions 1973 ^a	Apportionment to be paid
Alhambra, City of	1,031	\$ 634.82				
Arcadia, City of	4,693	2,889.64				
California-American Water Company	2,299	1,415.57				
Canyon Mutual Water Company ^b	127	78.20				
East Pasadena Water Company, Limited	515	317.10				
Henry E. Huntington Library and Art Gallery	262	161.32				
Kinneloa Irrigation District	229	141.00	50	\$25.00	4	\$ 6.85
La Canada Irrigation District	100	61.58			0 ^c	0
Las Flores Water Company, The	249	153.32			16 ^d	27.38
Lincoln Avenue Water Company	567	349.12			239 ^e	409.00
Mira Loma Mutual Water Company ^b	148	91.13			12 ^d	20.53
Monrovia, City of	951	585.56				
Osborn Company ^b	12	7.39				
Pasadena Cemetery Association	91	56.03				
Pasadena, City of	12,807	7,885.70			326 ^f	557.89
Royal Laundry and Dry Cleaning Co.	110	67.73	50	\$25.00		
Rubio Canon Land and Water Association	1,221	751.81			75 ^e	128.35
San Gabriel County Water District	1,091	671.77				
Sierra Madre, City of	1,764	1,086.16				
Sunny Slope Water Company	1,558	959.31				
Valley Water Company	797	490.74				
TOTALS	30,622	\$18,855.00		\$50.00	672	\$1,150.00

^a/Surface water diversions for spreading, in acre-feet, from May to October 1973.

^b/Was a party at the time of billing.

^c/Will not be diverting.

^d/Estimated diversions.

^e/Diversions for May were estimated.

^f/Diversions in Eaton Canyon.

Part B supports the cost of operating the Raymond Basin Exchange Pool. Only the parties participating in the Pool were charged for that cost. Part C supports the cost of determining the amount of surface water diversions for spreading and only the parties spreading for credit were charged for that cost. Each party's share of the 1974-75 budget is shown in Table 15. No penalties were assessed for late payments.

Income and expenditures under both parts of the budget appear in Table 16. Credit or debit balances shown there are carried forward into the next fiscal year, as directed by Sections 4358

and 4406 of the California Water Code and Paragraph XIII of the Judgment.

Costs of Determining Salvage
Credit for City of Sierra Madre

On June 30, 1974, an adjusted debit balance of \$3.49 remained in the special account established to pay the cost of determining amounts of water salvaged by the City of Sierra Madre. During the 1974-75 season, on request, the City deposited \$400 in this account. Expenditures during this season totaled \$389.40. A credit balance of \$7.11 remained in the account on June 30, 1975.

Table 16. STATEMENT OF 1974-75 INCOME AND EXPENDITURES

Item	Parties	State	State and Parties
<u>Income</u>			
From Part A of the budget	\$18,855.00	\$18,855.00	\$37,710.00
From Part B of the budget	50.00	50.00	100.00
From Part C of the budget	1,150.00	1,150.00	2,300.00
Carryover from 1973-74	- 1,001.89	0.00	- 1,001.89
Total Income	\$19,053.11	\$20,055.00	\$39,108.11
<u>Expenditures^{a/}</u>			
From Part A of the budget			
Salaries and Wages	\$12,963.44	\$12,963.44	\$25,926.88
Operating expenses			
Miscellaneous indirect costs ^{b/}	4,370.44	4,370.45	8,740.89
Mobile Equipment rental and operation	363.54	363.54	727.08
Printing annual report	100.08	100.07	200.15
Travel and training	85.75	85.76	171.51
Electronic machine computing	746.61	746.61	1,493.22
General Supplies	107.28	107.27	214.55
From Part B of the budget			
Salaries and wages	37.00	37.00	74.00
Operating expenses	13.00	13.00	26.00
From Part C of the budget			
Salaries and wages	599.00	599.00	1,198.00
Operating expenses	50.00	50.00	100.00
Miscellaneous indirect costs ^{b/}	281.00	281.00	562.00
Total Expenditures	\$19,717.14	\$19,717.14	\$39,434.28
BALANCE	-\$ 684.03		

^{a/} Adjusted for 1973-74 delayed charges and credits.

^{b/} Rent, utilities, auto rental, janitorial services, communications, retirement, employees' health plan, and workmen's compensation insurance.

^{c/} Subject to delayed charges and credits.

APPENDIX A

**MEAN DAILY DISCHARGE AT SURFACE RUNOFF STATIONS
OPERATED BY THE WATERMASTER
1974-75 FISCAL YEAR**

APPENDIX A: MEAN DAILY DISCHARGE AT SURFACE RUNOFF STATIONS OPERATED BY THE WATERMASTER, 1974-75 FISCAL YEAR

MEAN DAILY DISCHARGE in second-feet													STATION NO. 75450	FISCAL YEAR 1974-75
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY	
1	.6	.3	5.0	.4	.2	.3	.2	.2	.2	.2	.2	.3	1	
2	.7	.4	.4	.5	.2	.4	.2	2.6	.2	.1	.2	.3	2	
3	.7	.3	.4	.6	.3	1.3	.2	33.2	.3	.1	.1	.2	3	
4	.8	.3	.4	.5	.2	68.5	.2	2.9	.2	.1	.2	.3	4	
5	1.0	.3	.4	.4	.2	.2	.2	.2	31.5	12.5	.2	.3	5	
6	1.2	.3	.4	.5	.2	.2	.2	.1	19.9	2.8	.2	.4	6	
7	1.4	.3	.3	2.3	.2	.2	.2	.2	.8	.2	.2	.3	7	
8	1.8	.3	.4	.3	.2	.1	.2	.2	22.9	1.3	.2	.3	8	
9	2.3	.4	.3	.4	.2	.2	.2	12.1	.3	1.5	.3	.4	9	
10	2.2	.4	.3	.4	.2	.2	.2	4.9	13.2	.2	.2	.4	10	
11	2.2	.4	.3	.6	.2	.2	.2	.2	.2	.2	.3	.4	11	
12	2.0	.4	.3	.4	.2	.2	.2	.2	.2	.2	.3	.5	12	
13	1.3	.4	.3	.5	.2	.2	.2	.2	22.8	.2	.2	.5	13	
14	1.0	.4	.3	.6	.2	.2	.2	.2	.4	.2	.2	.5	14	
15	.8	.4	.3	.4	.2	.2	.2	.2	.2	2.1	.3	.4	15	
16	.6	.4	.3	.5	.3	.2	.2	.2	.4	.2	.3	.4	16	
17	.5	.4	.3	.7	.3	.2	.3	.1	.2	.2	.3	.5	17	
18	.4	.4	.5	.8	.4	.2	.3	.2	.2	.1	.3	1.0	18	
19	.4	.4	.4	1.1	.3	.2	.3	.1	.2	.2	.4	.4	19	
20	.3	.4	.4	2.0	.3	.2	.3	.1	.2	.2	1.0	.4	20	
21	.3	.5	.4	1.5	.4	.2	.3	.2	.2	.2	.2	.4	21	
22	.5	.5	.4	1.3	.3	.2	.3	.1	17.8	.2	.1	.4	22	
23	.3	.5	.4	1.9	.2	.2	.2	.2	.3	.2	.2	.4	23	
24	.3	.5	.4	2.4	.2	.2	.3	.3	.2	.2	.2	.4	24	
25	.3	.6	.5	2.0	.2	.2	.3	.1	1.0	.6	.2	.4	25	
26	.3	.6	.5	2.3	.2	.2	.3	.2	.3	.1	.2	.4	26	
27	.3	.7	.5	2.3	.2	.8	1.5	.1	.2	.1	.2	.4	27	
28	.3	.8	.5	27.0	.2	31.7	.2	.2	.2	.1	.2	.5	28	
29	.3	.5	.4	.3	.2	.8	.2	.2	.2	.2	.2	.5	29	
30	.3	.5	.4	.3	.2	.3	.4	.2	.2	.2	.3	.7	30	
31	.3	.6		.3		.2	.3		.4		.3		31	
MEAN	.8	.4	.5	1.8	.2	3.5	.3	2.1	4.2	.8	.3	.4	MEAN	
MAX.	2.3	.8	5.0	27.0	.4	68.5	1.5	33.2	31.5	12.5	1.0	1.0	MAX.	
MIN.	.3	.3	.3	.3	.2	.1	.2	.1	.2	.1	.1	.2	MIN.	
ACFT	51.4	27.5	32.4	110.2	13.6	215.5	17.4	118.5	260.4	49.7	15.4	24.7	ACFT	

FISCAL YEAR SUMMARY

MEAN	MAXIMUM					MINIMUM					TOTAL
DISCHARGE	DISCHARGE	GAGE HT	WD	DAY	TIME	DISCHARGE	GAGE HT	WD	DAY	TIME	ACFE-FFET
1.27	807.83	2.11	12	4	0512	.05	.01	3	27	1800	936.70

MEAN DAILY DISCHARGE in second-feet													STATION NO. ARROYO SECO	FISCAL YEAR 1974-75
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY	
1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	1	
2	.0	NO FLOW	.0	.0	.5	.0	.0	.0	.0	.2	.0	.0	2	
3	.0	NO FLOW	.0	.0	.3	.0	.0	.0	.0	.2	.0	.0	3	
4	.0	NO FLOW	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	4	
5	.0	NO FLOW	.0	.0	NO FLOW	1.9	.0	.0	.0	.2	.0	.0	5	
6	.2	NO FLOW	.0	.0	NO FLOW	.2	.0	.5	89.0	4.9	.0	.0	6	
7	.1	NO FLOW	.0	.0	NO FLOW	.1	.0	.4	20.1	.5	.0	.0	7	
8	.1	NO FLOW	.0	.0	NO FLOW	.1	.0	.4	41.5	.4	.0	.0	8	
9	.0	NO FLOW	.0	.0	NO FLOW	.0	.0	.4	18.3	.2	.0	.0	9	
10	.0	NO FLOW	.0	.0	.1	NO FLOW	.0	.5	15.5	.5	.0	.0	10	
11	.0	NO FLOW	.0	.0	.1	NO FLOW	.0	.5	10.7	.4	.0	.0	11	
12	.0	NO FLOW	.0	.0	.0	NO FLOW	.0	.5	7.9	.4	.0	.0	12	
13	.0	NO FLOW	.0	.0	.0	NO FLOW	.0	.5	7.8	.4	.0	.0	13	
14	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.5	15.2	.4	.0	.0	14	
15	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.4	4.4	.7	.0	.0	15	
16	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.4	1.5	.9	.0	.0	16	
17	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.4	.4	.5	.0	.0	17	
18	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.3	.4	.4	.0	.0	18	
19	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.2	.3	.4	.0	.0	19	
20	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.1	.2	.4	.2	.0	20	
21	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.1	.2	.4	.2	.0	21	
22	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.0	.4	.4	.2	.0	22	
23	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.1	1.8	.3	.0	.0	23	
24	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.1	.4	.1	.0	.0	24	
25	.0	NO FLOW	.0	.0	NO FLOW	NO FLOW	.0	.0	.3	.0	.0	.0	25	
26	.0	.0	.0	.0	NO FLOW	NO FLOW	.0	.0	.2	.0	.0	.0	26	
27	.0	.0	.0	.0	NO FLOW	NO FLOW	.0	.0	.1	.0	.0	.0	27	
28	.0	.0	.0	.0	NO FLOW	.3	.0	.0	.0	.0	.0	.0	28	
29	.0	.0	.0	.0	NO FLOW	.3	.0	.0	.0	.0	.0	.0	29	
30	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	30	
31	.0	.0		.0		.0	.0		.1		.0		31	
MEAN	.0	.0	.0	.0	.0	1.5	.0	.4	7.9	.9	.0	.0	MEAN	
MAX.	.2	.0	.0	.0	.5	42.0	.0	.4	89.0	.5	.2	.0	MAX.	
MIN.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	MIN.	
ACFT	.4	.0	.0	.0	2.5	91.3	.0	33.8	484.8	55.2	1.1	.0	ACFT	

FISCAL YEAR SUMMARY

MEAN	MAXIMUM					MINIMUM					TOTAL	
DISCHARGE	DISCHARGE	GAGE HT	WD	DAY	TIME	DISCHARGE	GAGE HT	WD	DAY	TIME	ACFE-FFET	
.91	130.44	1.58	3	8	0244	0	0	0	7	15	0000	869.10

APPENDIX A (continued)

STATION: BROADWAY DRAIN													STATION NO. 75135	FISCAL YEAR 1974-75
MEAN DAILY DISCHARGE in second-feet														
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY	
1	.9	1.2	.6	.4	.4	.2	.5	.7	.4	.5	.3	.6	1	
2	.8	.5	.4	.4	.4	.2	.5	.7	.5	.4	.8	.6	2	
3	1.3	.9	.4	.4	.4	3.5	.5	34.7	.4	.4	.2	.4	3	
4	.9	.7	.7	.3	.4	19.3	.5	9.4	.5	.8	.1	.5	4	
5	1.1	.5	.6	.2	.4	2.4	.5	1.5	9.2	3.7	.1	.5	5	
6	1.7	.4	.6	.3	.4	.7	.5	1.6	9.6	2.2	.2	.6	6	
7	1.7	.9	.5	2.4	.4	1.1	.5	2.4	8.0	.7	.2	.3	7	
8	1.8	.9	.4	.9	.4	.4	.5	5.8	9.4	7.4	.4	.3	8	
9	1.0	.7	.4	.9	.4	.5	.5	33.6	2.0	7.8	.3	.6	9	
10	.8	1.0	.4	.7	.4	.5	.5	12.7	7.5	1.1	.3	.3	10	
11	.6	.7	.5	.7	.4	.5	.5	1.5	1.3	.9	.3	.3	11	
12	.6	.7	.6	.4	.4	.4	.5	1.5	1.2	.8	.5	.6	12	
13	.8	.7	.6	.3	.5	.4	.5	1.7	3.6	.7	.7	.7	13	
14	1.1	.7	.6	.4	.8	.4	.5	1.6	2.7	.8	.7	.8	14	
15	.5	.5	.5	.4	.7	.3	.5	1.2	.7	2.4	.8	.6	15	
16	.4	.3	.4	.4	.7	.5	.5	1.4	1.3	.7	1.0	.7	16	
17	.4	.5	.9	.4	.5	.4	.5	2.0	.7	.6	.5	2.4	17	
18	.5	.4	.8	.4	.5	.4	.5	1.9	.8	.5	.6	1.2	18	
19	.5	.3	.6	.4	.4	.4	.5	2.0	.8	.4	.8	.8	19	
20	.4	.3	.4	.4	.7	.4	.5	1.6	.7	.4	2.4	.7	20	
21	.5	.3	.4	.4	1.5	.4	.5	.9	1.0	.4	.9	.4	21	
22	.4	.3	.4	.6	.9	.4	.5	.6	7.1	.6	.8	.5	22	
23	.5	.3	.4	.7	.5	.4	.5	.7	.7	.6	.8	.6	23	
24	.7	.3	.6	.5	.4	.4	.5	.9	.7	.5	.7	.6	24	
25	.7	.3	.7	.7	.6	.4	.5	1.9	2.9	.5	.5	.6	25	
26	1.1	.3	.7	.5	.2	.4	.5	.4	1.5	.2	.5	.5	26	
27	1.5	.3	.7	.4	.2	.4	.5	.5	.2	.2	.5	.5	27	
28	.9	.4	.5	6.9	.2	11.5	.5	.2	.2	5.5	.5	.4	28	
29	.9	.4	.6	.7	.2	.9	.5	.6	.2	7.5	.4	.5	29	
30	1.0	.7	.5	.5	.2	.4	.5	.2	.2	2.5	.7	.8	30	
31	1.2	.8		.4		.4	.5		.5		.3		31	
MEAN	.9	.6	.5	.7	.5	1.6	.5	4.6	2.2	1.4	.6	.6	MEAN	
MAX.	1.8	1.2	.9	6.9	1.5	19.3	.5	38.7	9.6	7.5	2.4	2.4	MAX.	
MIN.	.4	.3	.4	.2	.2	.2	.5	.4	.2	.2	.1	.3	MIN.	
ACFT	54.2	36.1	32.6	45.5	28.9	97.2	73.3	257.5	176.0	86.7	34.9	36.8	ACFT	

FISCAL YEAR SUMMARY

MEAN		MAXIMUM					MINIMUM					TOTAL	
DISCHARGE	FT	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	ACRE-FEET	
1.22		301.32	1.97	2	3	1324	.08	.05	5	4	1800	877.30	

STATION: EATON CREEK NEAR PASADENA													STATION NO. 75360	FISCAL YEAR 1974-75
MEAN DAILY DISCHARGE in second-feet														
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY	
1	1.4	4.3	.4	.3	1.6	1.5	.6	1.1	.6	10.3	2.6	.9	1	
2	1.5	4.4	.7	.3	1.6	1.5	.6	2.4	.9	9.8	2.1	.9	2	
3	.9	4.3	2.6	.9	1.6	1.5	.6	5.2	1.0	8.3	2.1	.9	3	
4	.5	4.3	2.8	.3	1.6	45.7	.6	3.6	1.1	1.7	2.1	1.0	4	
5	.9	3.9	2.8	.3	1.6	.5	.6	3.7	2.2	4.7	1.9	1.0	5	
6	.2	1.1	2.8	.3	1.5	.6	.6	3.5	35.2	5.2	1.9	1.0	6	
7	.2	1.3	2.9	.5	1.4	.6	.6	2.4	13.2	4.1	1.9	.9	7	
8	.2	1.3	3.0	.6	1.5	.6	.6	2.2	23.4	7.9	1.7	1.0	8	
9	.9	1.3	3.3	.6	1.5	.6	.6	2.1	8.7	6.8	4.3	.9	9	
10	1.8	1.3	3.1	.6	1.5	.6	.6	2.1	11.1	6.2	1.5	.8	10	
11	1.9	1.3	3.2	.6	1.5	.6	1.3	2.1	8.7	5.7	2.0	.8	11	
12	2.3	1.3	3.1	.6	1.5	.6	1.5	2.3	6.7	5.2	2.4	.8	12	
13	1.1	1.3	3.0	.6	1.5	.6	.3	2.7	7.3	5.0	1.9	.8	13	
14	2.3	1.3	2.9	.6	1.5	.6	.2	2.4	8.8	4.8	1.8	.8	14	
15	3.2	1.3	2.8	.6	1.5	.6	.2	2.2	7.1	4.6	1.3	.8	15	
16	3.6	1.3	2.8	.6	1.5	.6	.1	2.0	6.1	4.3	1.1	.9	16	
17	3.7	1.3	2.7	.6	1.5	.6	.1	1.9	4.6	4.1	1.3	.9	17	
18	3.9	1.3	2.8	.6	1.5	.6	.1	1.7	7.9	4.0	1.3	.9	18	
19	4.0	1.3	3.0	.6	1.5	.6	.1	1.7	7.3	4.1	1.4	1.0	19	
20	4.1	1.3	3.0	.6	1.5	.6	.1	1.6	7.0	4.5	2.5	.9	20	
21	4.0	1.3	3.0	.6	1.5	.6	.2	1.6	2.6	4.4	1.5	.8	21	
22	4.0	1.3	2.9	.6	1.5	.6	.2	1.2	5.8	4.6	1.5	.6	22	
23	4.1	1.3	2.8	.6	1.5	.6	.2	.7	3.0	4.8	1.4	1.9	23	
24	4.1	1.3	2.5	.6	1.5	.6	.3	.6	2.6	4.8	1.2	3.1	24	
25	4.1	1.2	2.3	.6	1.5	.6	.3	.5	2.9	4.3	1.1	.6	25	
26	4.1	1.1	1.8	1.1	1.5	.6	.7	.4	2.4	4.4	1.1	.3	26	
27	4.1	1.0	1.1	1.6	1.5	.6	.4	.3	2.0	4.5	1.2	.2	27	
28	4.1	.9	.7	1.6	1.5	7.1	.4	.3	1.4	4.9	1.1	.5	28	
29	4.1	.8	.5	1.6	1.5	1.2	.5		3.8	5.8	1.0	.9	29	
30	4.1	.8	.4	1.6	1.5	.6	.6		4.6	2.6	1.0	.9	30	
31	4.1	.7		1.6		.6	.6		5.8		.9		31	
MEAN	2.7	1.7	2.4	.7	1.5	2.4	.5	2.0	6.3	5.1	1.7	.6	MEAN	
MAX.	4.1	4.4	3.3	1.6	1.6	45.7	1.5	5.2	75.2	10.3	4.3	3.1	MAX.	
MIN.	.2	.7	.7	.3	.4	.5	.1	.7	.6	1.7	.9	.2	MIN.	
ACFT	166.2	102.8	141.6	44.4	90.1	145.5	28.0	108.5	785.6	102.4	103.5	55.0	ACFT	

FISCAL YEAR SUMMARY

MEAN		MAXIMUM					MINIMUM					TOTAL	
DISCHARGE	FT	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	ACRE-FEET	
2.32		192.51	2.22	3	6	0336	.10	.07	1	16	1200	1673.60	

APPENDIX A (continued)

STATION: EATON WASH													STATION NO. 75300		FISCAL YEAR 1974-75	
MEAN DAILY DISCHARGE in second-feet													75300		1974-75	
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY			
1	.1	.3	.1	.0	.2	.1	.5	.0	.2	.1	.1	.0	1			
2	.3	.2	.1	.0	.1	.2	.7	9.5	.2	.2	.1	.0	2			
3	.1	.2	.3	.0	.1	4.2	.7	38.2	.1	.4	.0	.0	3			
4	.1	.2	.3	.0	.1	66.4	.5	8.0	.1	.3	.0	.0	4			
5	.2	.2	.6	.0	.2	.3	.6	.3	38.4	14.8	.1	.0	5			
6	.1	.3	.6	.0	.1	.2	.6	.3	44.5	9.7	.1	.1	6			
7	.1	.1	.2	3.8	.1	.2	.7	.3	2.7	.2	.2	.1	7			
8	.2	.0	.2	.0	.1	.2	.7	1.6	12.6	9.0	.1	.0	8			
9	.2	.0	.2	.0	.1	.2	.7	24.3	.6	4.5	.1	.0	9			
10	.2	.1	.3	.0	.1	.2	.8	10.8	11.6	1.0	.1	.0	10			
11	.3	.1	.3	.0	.1	.2	.8	.3	1.7	.7	.1	.0	11			
12	.2	.3	.3	.1	.1	.2	.7	.3	.6	.1	.1	.1	12			
13	.2	.1	.3	.1	.1	.2	.7	.2	17.0	.1	.2	.2	13			
14	.2	.2	.3	.1	.1	.2	.7	.3	.7	.1	.1	.1	14			
15	.3	.2	.2	.1	.2	.2	.7	.2	.4	7.5	.1	.0	15			
16	.3	.2	.2	.0	.2	.2	.6	.3	1.2	.1	.1	.0	16			
17	.3	.2	.3	.1	.2	.2	.5	.3	.4	.1	.1	.3	17			
18	.3	.1	.3	.1	.2	.3	.4	.3	.3	.1	.0	.3	18			
19	.4	.1	.4	.0	.3	.2	.4	.4	.3	.1	1.3	.0	19			
20	.3	.1	.5	.0	.2	.2	.3	.4	.3	.1	4.6	.1	20			
21	.2	.1	.7	.0	.7	.2	.2	.4	.2	.1	.0	.0	21			
22	3.1	.1	.7	.0	.3	.2	.2	.4	12.8	.1	.0	.0	22			
23	.2	.1	.6	.0	.2	.4	.2	.5	.3	.1	.1	.1	23			
24	.2	.1	1.0	.0	.1	.5	.1	.5	.3	2.6	.1	.1	24			
25	.2	.0	1.0	.0	.2	.4	.1	.4	7.3	.4	.0	.1	25			
26	.2	.1	.5	.0	.2	.9	.1	.3	.3	.0	.0	.1	26			
27	.2	.1	.4	.0	.1	1.2	4.6	.2	.2	.1	.1	.1	27			
28	.2	.2	.4	18.3	.1	40.3	.1	.2	.1	.3	.1	.1	28			
29	.2	.2	.4	.0	.1	3.1	.0	.0	.1	.1	.1	.1	29			
30	.2	.2	.4	.0	.2	1.0	.6	.6	1.8	.2	.1	.1	30			
31	.2	.2		.0		.9	.1		.2		.0		31			
MEAN	.3	.1	.4	.7	.2	4.0	.6	3.5	4.9	1.8	.3	.1	MEAN			
MAX.	3.1	.3	1.0	18.3	.7	66.4	4.6	38.2	44.5	14.8	4.6	.3	MAX.			
MIN.	.1	.0	.1	.0	.1	.1	.0	.0	.0	.0	.0	.0	MIN.			
ACFT	19.0	8.6	24.2	45.2	10.1	244.6	37.0	196.8	303.8	104.2	16.5	4.8	ACFT			

FISCAL YEAR SUMMARY

MEAN		MAXIMUM					MINIMUM					TOTAL	
DISCHARGE	1.41	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	ACRE-FEET	1014.80
		594.99	1.81	12	4	0400	0	0	8	8	2400		

STATION: FLINT WASH													STATION NO. 42190		FISCAL YEAR 1974-75	
MEAN DAILY DISCHARGE in second-feet													42190		1974-75	
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY			
1	.3	.4	.2	.2	18.0	.2	.5	.4	.6	.7	.4	.5	1			
2	.3	.4	.3	.3	.5	.2	.4	.4	.5	.6	.4	.3	2			
3	.3	.4	.2	.3	.4	19.9	.4	52.9	.4	.5	.4	.7	3			
4	.3	.3	.3	.3	.3	159.1	.7	3.0	.3	.5	.3	.4	4			
5	.3	.4	.2	.3	.3	.8	.4	.6	44.3	.6	.7	.6	5			
6	.3	.3	.3	.3	.3	.6	.4	.6	24.3	.7	.3	.4	6			
7	.4	.4	.3	10.9	.2	.5	.4	.5	17.1	1.0	.4	.4	7			
8	.5	.4	.3	.7	.2	.4	.5	.6	51.1	.9	.3	.3	8			
9	.4	.4	.4	.4	.4	.5	.4	4.6	5.7	.8	.7	.4	9			
10	.4	.4	.3	.3	.2	.3	.3	1.4	4.3	.8	.4	.4	10			
11	.4	.4	.3	.3	.1	.4	.7	.4	1.8	.7	.5	.4	11			
12	.3	.4	.3	.3	.1	.3	.7	.7	1.7	.8	.7	.4	12			
13	.3	.4	.3	.3	.2	.2	.4	.9	1.1	.8	.4	.4	13			
14	.3	.4	.4	.3	.2	.3	.7	1.1	1.8	.8	.4	.7	14			
15	.3	.3	.3	.2	.2	.3	.7	.9	1.4	.6	.4	.4	15			
16	.3	.3	.3	.2	.2	.3	.7	.8	1.5	.8	.4	.5	16			
17	.3	.3	.3	.2	.2	.3	.7	.8	1.1	.6	.4	.5	17			
18	.4	.4	.4	.2	.2	.3	.7	.8	.4	.4	.4	1.2	18			
19	.3	.3	.3	.2	.2	.3	.7	.7	.8	.5	.8	.5	19			
20	.3	.4	.3	.2	.2	.2	.7	.8	.9	.4	4.1	.4	20			
21	.3	.3	.4	.2	.7	.3	.2	.7	1.0	.5	.8	.4	21			
22	.3	.3	.4	.1	.6	.4	.2	.7	2.0	.7	.8	.5	22			
23	.4	.3	.3	.1	.3	.3	.7	.7	1.1	.4	1.1	.5	23			
24	.4	.3	.3	.1	.3	.2	.2	.7	.8	.4	.8	.4	24			
25	.4	.3	.2	.2	.3	.3	.7	.7	.8	1.4	.7	.4	25			
26	.4	.3	.3	.2	.2	.3	.7	.6	.8	.4	.3	.4	26			
27	.4	.3	.3	.1	.2	.3	.7	.8	.8	.7	.4	.3	27			
28	.3	.4	.3	11.5	.2	45.6	.7	.9	.4	.4	.4	.4	28			
29	.3	.4	.3	.2	.2	1.3	.7	.6	.9	.4	.4	.4	29			
30	.4	.5	.3	.2	.2	.5	.3	.8	.8	.7	.4	.5	30			
31	.4	.3		.3		.4	.7		.8		.4		31			
MEAN	.3	.4	.3	1.4	.4	7.8	.3	2.8	4.7	.6	.8	.4	MEAN			
MAX.	.5	.5	.4	11.5	18.0	159.1	.5	52.9	44.3	1.4	4.1	1.2	MAX.			
MIN.	.3	.3	.2	.1	.1	.2	.2	.3	.7	.7	.7	.7	MIN.			
ACFT	21.3	22.6	17.8	59.2	51.0	467.7	19.3	155.7	384.8	74.1	70.4	27.7	ACFT			

FISCAL YEAR SUMMARY

MEAN		MAXIMUM					MINIMUM					TOTAL	
DISCHARGE	1.40	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	ACRE-FEET	1703.20
		1072.00	4.87	12	4	0276	0	0	4	29	1649		

APPENDIX A (continued)

STATION: RUBIO DRAIN													STATION NO.	FISCAL YEAR
MEAN DAILY DISCHARGE in second-feet													75228	1974-75
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY	
1	.9	1.5	.7	1.0	.7	.5	1.5	1.3	1.3	.9	1.1	1.4	1	
2	1.0	1.3	.8	.8	2.7	.5	1.5	1.3	1.3	.6	1.1	1.5	2	
3	.9	1.3	1.0	.9	.9	.6	1.2	111.8	1.3	.5	1.3	1.4	3	
4	.9	1.3	1.0	.8	1.2	179.6	1.1	17.5	1.3	.6	1.2	1.3	4	
5	.7	1.3	1.1	.7	1.0	2.2	1.1	1.9	77.7	41.4	1.1	1.2	5	
6	.8	.6	1.3	.8	1.2	1.1	1.1	1.5	177.7	73.6	1.3	1.1	6	
7	.8	.6	1.4	7.2	1.0	.7	1.1	1.4	10.8	1.3	1.3	1.0	7	
8	.8	.6	1.2	1.2	.5	.7	1.2	1.3	70.0	9.3	1.2	.9	8	
9	1.0	.5	1.2	.8	.6	.9	1.2	44.6	1.5	20.2	1.3	1.1	9	
10	1.0	.6	1.3	.9	.5	.8	1.1	16.0	31.8	1.1	1.4	1.4	10	
11	1.3	.3	1.3	1.1	.5	1.0	1.1	2.3	3.7	1.1	1.3	1.4	11	
12	1.4	.5	1.3	.9	.6	1.2	1.1	1.8	1.5	1.1	1.5	1.4	12	
13	1.5	.5	1.4	.7	.6	1.5	1.1	1.4	48.1	1.1	1.6	1.4	13	
14	1.5	.5	1.1	.9	.6	1.5	1.3	1.4	2.4	1.1	1.7	1.4	14	
15	1.5	.5	1.0	.8	.6	1.5	1.1	1.3	1.1	1.1	1.7	1.2	15	
16	1.4	.3	.9	.9	.7	1.6	1.1	1.3	3.5	1.1	1.5	1.2	16	
17	1.4	.4	.8	1.2	.7	1.6	1.1	1.4	1.4	1.1	1.5	1.2	17	
18	1.6	.4	.7	.9	.8	1.6	1.1	1.3	1.2	1.1	1.5	2.2	18	
19	1.7	.6	.7	.8	.7	1.6	1.1	1.3	1.1	1.1	1.5	1.5	19	
20	1.4	.8	.7	.9	1.0	1.6	1.1	1.5	1.1	1.1	9.8	1.3	20	
21	1.2	.7	.8	1.0	1.0	1.6	1.1	1.6	1.1	1.1	1.7	1.0	21	
22	1.1	.9	.7	1.0	1.4	1.5	1.1	1.4	33.1	1.1	1.5	.9	22	
23	1.7	1.1	.9	.8	.7	1.6	1.1	1.3	1.2	1.1	1.5	1.0	23	
24	1.2	.9	1.0	.8	.7	1.5	1.1	1.4	1.1	1.1	1.5	1.0	24	
25	1.3	1.0	1.1	.8	.7	1.5	1.1	1.4	6.4	1.1	1.4	1.0	25	
26	1.3	.9	1.2	.9	.7	1.5	1.2	1.3	1.1	1.1	1.3	.9	26	
27	1.4	.8	1.4	.7	.7	1.5	8.7	1.4	.9	1.1	1.5	1.0	27	
28	1.5	.8	1.2	47.7	.5	71.7	1.5	1.3	.7	1.1	1.3	1.1	28	
29	1.3	267.3	1.1	.9	.5	8.4	1.4	.7	.7	1.1	1.3	1.1	29	
30	1.5	261.4	1.1	.8	.5	1.9	2.1	.5	.5	1.1	1.4	.9	30	
31	1.5	261.4		.8		1.6	1.4		1.5		1.4		31	
MEAN	1.2	26.2	1.0	2.6	.8	9.6	1.4	9.0	15.7	4.4	1.7	1.2	MEAN	
MAX.	1.7	267.3	1.4	47.7	2.7	179.6	8.7	111.8	177.7	41.4	9.8	2.2	MAX.	
MIN.	.7	.3	.7	.7	.5	.5	1.1	1.3	.5	.5	1.1	.9	MIN.	
ACFT	75.8	1609.5	62.2	159.9	47.9	588.1	89.0	445.9	968.0	259.7	102.8	71.8	ACFT	

FISCAL YEAR SUMMARY

MEAN	MAXIMUM					MINIMUM					TOTAL
DISCHARGE	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	ACRE-Feet
6.15	1944.13	3.30	12	4	0836	.22	.01	8	11	1200	4480.60

STATION: SECO DRAIN													STATION NO.	FISCAL YEAR
MEAN DAILY DISCHARGE in second-feet													42150	1974-75
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY	
1	.0	.0	.3	.2	3.7	1.3	1.0	.7	1.3	2.7	1.0	.4	1	
2	.0	.0	.3	.0	1.4	1.4	1.0	11.4	1.3	2.5	1.0	.2	2	
3	.1	.0	.3	.0	1.3	6.9	.3	25.7	1.0	2.5	1.0	.6	3	
4	.1	.0	.3	.0	1.3	54.9	.7	4.9	.7	2.3	1.0	.4	4	
5	.2	.0	.3	.0	1.3	.8	.3	.9	11.4	2.3	.8	.5	5	
6	.1	.0	.3	.0	.8	.7	.3	.7	63.7	4.2	.7	1.3	6	
7	.1	.0	.3	6.4	.8	.6	.5	.7	7.9	1.6	.7	2.1	7	
8	.1	.0	.3	1.7	.8	.5	.6	1.4	19.8	5.3	.5	2.0	8	
9	.1	.3	.3	1.1	1.0	.6	.6	11.4	1.4	5.4	.3	2.0	9	
10	.2	.4	.3	1.0	1.0	.7	2.4	4.5	9.9	3.0	.3	1.8	10	
11	.2	.4	.3	1.0	.7	.7	3.6	.7	2.3	1.3	.3	1.3	11	
12	.1	.4	.3	1.0	1.4	.7	3.1	.7	1.3	1.3	.1	1.3	12	
13	.1	.4	.3	1.0	.7	.7	2.1	.6	16.9	1.0	.3	1.4	13	
14	.1	.5	.3	1.0	.7	.7	1.0	.6	2.5	.9	.3	1.6	14	
15	.1	.4	.3	1.2	.7	.7	1.0	.6	2.5	4.3	.3	1.6	15	
16	.1	.5	.3	1.0	.7	.7	1.1	.6	4.2	2.5	.1	1.6	16	
17	.0	.4	.4	1.1	.7	.7	2.3	.6	1.5	2.0	.0	1.6	17	
18	.0	.4	.4	1.0	1.2	.7	2.7	.6	.8	.8	.3	1.1	18	
19	.0	.4	.4	1.0	1.2	.7	2.5	.6	.7	.4	.4	1.2	19	
20	.0	.4	.4	1.2	1.1	.7	2.5	.6	.7	.4	.6	1.3	20	
21	.0	.4	.3	1.0	1.3	.7	2.8	.6	3.8	.4	1.0	1.3	21	
22	.0	.4	.3	1.0	1.1	.7	2.8	1.2	5.4	.4	.8	1.2	22	
23	.1	.4	.4	1.0	.9	.7	2.8	1.3	4.2	.4	.8	1.2	23	
24	.2	.4	.3	1.0	1.0	.7	3.0	1.2	3.9	.3	1.1	1.1	24	
25	.1	.4	.9	1.2	1.0	.7	2.7	1.1	1.6	.2	1.2	.9	25	
26	.1	.4	.7	1.0	1.1	.7	2.5	1.3	1.6	.3	1.1	.8	26	
27	.2	.3	.7	1.0	1.3	.7	4.2	2.4	1.3	.3	1.2	.6	27	
28	.1	.2	.7	9.6	1.3	34.1	1.3	2.8	1.3	.7	1.1	1.1	28	
29	.2	.1	1.2	1.0	1.3	5.3	1.3		1.3	.3	.8	1.0	29	
30	.1	.0	1.7	.9	1.3	.7	1.8		1.3	.6	.8	.8	30	
31	.1	.0		.8		.7	.7		1.8		1.1		31	
MEAN	.1	.3	.4	1.3	1.1	3.9	1.8	2.9	5.8	1.7	.7	1.2	MEAN	
MAX.	.2	.5	1.7	9.6	3.7	54.9	4.2	25.7	63.7	5.4	1.2	2.1	MAX.	
MIN.	0	0	.3	.0	.7	.5	.3	.6	.7	.2	0	.7	MIN.	
ACFT	7.0	16.2	26.1	79.6	67.0	239.7	108.8	158.6	355.1	99.7	41.4	70.4	ACFT	

FISCAL YEAR SUMMARY

MEAN	MAXIMUM					MINIMUM					TOTAL
DISCHARGE	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	ACRE-Feet
1.77	411.67	2.20	12	4	0336	0	0	7	0	0000	1269.60

APPENDIX A (continued)

STATION: WEST ALTADENA													STATION NO.		FISCAL YEAR	
MEAN DAILY DISCHARGE in second-feet													K2985		1974-75	
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY			
1	.3	.0	.2	.1	4.5	.5	.3	4.1	.9	.1	.1	.0	1			
2	.2	.0	.2	.0	.3	.8	.2	5.1	1.2	.0	.1	.2	2			
3	.2	.0	.2	.1	.2	3.4	.1	22.8	.3	.0	.0	.1	3			
4	.2	.0	.2	.0	.0	15.4	.1	10.3	.0	.0	.4	.1	4			
5	.3	.0	.2	.1	.0	.0	.2	.9	8.0	4.4	.1	.4	5			
6	.2	.0	.2	.1	.0	.0	.4	.3	27.2	7.5	.1	.1	6			
7	.2	.0	.2	3.2	.1	.0	.3	.3	1.7	.1	.1	.2	7			
8	.2	.0	.2	.7	.1	NO FLOW	.5	.5	8.5	.8	.1	.3	8			
9	.2	.0	.2	.5	.1	NO FLOW	.6	19.0	.4	.5	.2	.3	9			
10	.3	.0	.2	.5	.2	NO FLOW	.5	8.8	7.3	8.0	.1	.4	10			
11	.2	.0	.2	.5	.1	NO FLOW	.5	.6	.9	.4	.1	.3	11			
12	.1	.0	.2	.5	.2	NO FLOW	.5	.3	.4	.2	.1	.3	12			
13	1.4	.0	.2	.5	.1	NO FLOW	.5	.3	6.3	.2	.0	.3	13			
14	.3	.0	.2	.5	.0	NO FLOW	.5	.3	.5	.0	.0	.4	14			
15	.4	.0	.2	.5	.1	NO FLOW	.5	.3	.5	.0	.0	.4	15			
16	.4	.0	.2	.5	.0	NO FLOW	.5	.3	.8	.0	.3	.3	16			
17	.3	.1	.2	.5	.0	NO FLOW	.5	.3	.5	.0	.5	.4	17			
18	.4	.1	.2	.6	.2	NO FLOW	.5	.3	.5	.0	.5	.8	18			
19	.4	.3	.2	.5	.0	NO FLOW	.5	.3	.4	.1	.9	.4	19			
20	.3	.1	.2	.5	.0	NO FLOW	.5	.3	.3	.1	1.2	.1	20			
21	.2	.0	.2	.5	.2	NO FLOW	.5	.3	.3	.0	.1	.1	21			
22	.3	.1	.2	.5	.1	NO FLOW	.5	.3	.1	.0	.3	.1	22			
23	.3	.1	.2	.6	.1	.1	.5	.3	.1	.0	.2	.3	23			
24	.3	.1	.2	.6	.1	.0	.5	.3	.3	.3	.1	.1	24			
25	.3	.0	.2	.6	.1	.0	.5	.3	.3	.5	.0	.1	25			
26	.3	.1	.2	.6	.1	.0	.5	.3	.3	.2	.1	.1	26			
27	.2	.1	.2	.6	.1	.0	.5	.3	.3	.0	.0	.2	27			
28	.3	.0	.2	4.9	.0	6.8	.5	.3	.2	.0	.1	.2	28			
29	.3	.2	.2	.2	.0	.4	.5		.2	.2	.2	.2	29			
30	.2	.2	.2	.2	.3	.3	.5		.1	.0	.1	.4	30			
31	.1	.1		.2		.3	.5		.3		.2		31			
MEAN	.3	.1	.2	.6	.2	.9	.4	7.8	7.1	.7	.2	.3	MEAN			
MAX.	1.4	.3	.2	4.9	4.5	15.4	.6	22.8	27.2	8.0	1.2	.8	MAX.			
MIN.	.1	.0	.2	.0	.0	.0	.1	.3	.0	.0	.0	.0	MIN.			
ACFT	18.2	3.5	9.5	38.6	14.6	55.7	26.2	155.0	129.7	38.9	12.4	15.7	ACFT			

FISCAL YEAR SUMMARY

MEAN DISCHARGE .73	MAXIMUM					MINIMUM					TOTAL ACRE-Feet 518.00
	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	
	224.25	2.18	NO	4	10	0	0	7	6	0500	

APPENDIX B

**GROUND WATER EXTRACTION DATA
FOR INDIVIDUAL WELLS**

APPENDIX B: GROUND WATER EXTRACTION DATA FOR INDIVIDUAL WELLS - In acre-feet

STATE WELL NUMBER	OWNERS DESIG- NATION	PRODUCTION												TOTAL
		1974						1975						
		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	

WESTERN UNIT (MONK HILL BASIN)														
LA CANADA IRRIGATION DISTRICT														
1N/13W-01J025	NEW 6	17.14	35.75	26.51	4.10	3.58	12.82	14.49	3.11	3.88	17.45	4.67	10.53	154.03
LAS FLORES WATER COMPANY														
1N/12W-08H025	2	19.24	23.66	25.40	23.73	19.07	6.60	11.14	22.80	23.91	30.10	49.87	16.93	272.45
LINCOLN AVENUE WATER COMPANY														
1N/12W-05P015	3	0	0	41.50	75.77	83.16	71.06	40.79	10.21	1.59	0	4.00	32.93	361.01
1N/12W-05P025	2	4.19	3.88	4.67	2.93	10.41	7.11	11.58	1.29	.03	.85	5.19	1.07	52.97
1N/12W-05O025	5	36.50	2.47	52.80	41.32	40.48	34.89	80.18	43.72	52.03	60.89	79.58	80.41	604.87
TOTALS:		40.69	6.17	98.97	120.02	134.05	113.06	132.55	54.82	53.65	61.74	88.76	114.41	1018.85
PASADENA CEMETERY ASSOCIATION														
1N/12W-05G015	4	4.85	2.58	2.05	.35	.11	.15	.45	.95	.23	.13	2.21	4.38	18.44
1N/12W-09F015	2-3	12.14	9.52	11.67	4.18	2.53	0	.66	1.81	.26	1.57	5.60	8.64	58.58
TOTALS:		16.99	12.10	13.72	4.53	2.64	.15	1.11	2.76	.49	1.70	7.81	13.02	77.02
PASADENA CITY OF														
1N/12W-05H015	ARPOY	270.30	261.08	259.83	242.38	250.80	253.64	266.66	29.47	0	0	0	0	1834.16
1N/12W-05N015	VFNTU	243.82	210.10	86.48	122.34	208.17	154.70	48.18	171.72	276.64	176.17	75.61	214.17	1988.10
1N/12W-08H025	WNO5R	74.95	78.74	0	9.09	15.53	4.82	5.46	11.24	1.01	76.65	141.50	127.46	546.45
TOTALS:		589.07	549.92	346.31	373.81	474.50	413.16	320.30	212.43	277.65	252.82	217.11	341.63	4368.71
PURHO CANON LAND AND WATER ASSN														
1N/12W-08H015	5	147.02	146.44	148.51	53.55	89.74	40.93	46.09	19.33	20.76	19.50	39.33	102.94	874.14
1N/12W-08H035	4	106.14	33.51	0	20.61	22.25	0	0	0	0	0	0	0	182.51
1N/12W-09K015	6	22.66	19.88	18.76	13.32	11.50	11.23	12.83	9.38	10.16	9.41	15.56	15.41	170.10
TOTALS:		275.82	199.83	167.27	87.48	123.49	52.16	58.92	28.71	30.92	28.91	54.89	118.35	1226.75
VALLEY WATER COMPANY														
1N/12W-06H015	3	0	0	0	0	0	.09	0	.30	0	0	0	.14	.53
1N/12W-06H045	2	39.89	21.29	23.42	18.95	19.94	37.75	52.62	27.12	26.99	30.04	61.29	25.35	384.65
1N/12W-06H065	1	25.96	15.36	27.13	15.58	11.56	9.98	6.89	8.54	8.46	5.89	6.35	1.27	142.97
1N/12W-06H095	4	26.84	27.59	21.21	15.76	21.03	23.51	22.22	24.02	22.88	20.62	14.06	.19	239.93
TOTALS:		92.69	64.24	71.76	50.29	52.53	71.33	81.73	59.98	58.33	56.55	81.70	26.95	768.08
SUBTOTALS (MONK HILL BASIN)		1051.66	891.63	749.94	663.96	809.86	669.28	620.24	384.61	448.83	449.27	504.81	641.82	7885.89

(PASADENA SUBAREA)														
ALHAMBRA, CITY OF														
1N/12W-34E015	2	81.04	76.73	78.50	43.93	0	0	60.62	84.42	78.71	0	72.92	90.62	667.49
1N/12W-34F045	6	.46	1.15	15.65	30.25	23.15	25.08	23.71	16.42	18.51	16.18	17.86	15.57	203.99
TOTALS:		81.50	77.88	94.15	74.18	23.15	25.08	84.33	100.84	97.22	16.18	90.78	106.19	871.48
ARCADIA, CITY														
1N/11W-29H015	ACHBA	0	0	0	0	.04	0	0	0	0	0	0	0	.04
1N/11W-30R035	HREIO	166.92	167.26	159.62	150.21	153.21	142.17	95.50	0	0	7.25	4.45	76.74	1123.33
TOTALS:		166.92	167.26	159.62	150.21	153.25	142.17	95.50	0	0	7.25	4.45	76.74	1123.37
CALIFORNIA-AMERICAN WATER CO														
1N/12W-25E015	1921A	48.85	52.04	37.53	0	0	0	0	0	11.99	47.52	72.94	270.87	270.87
1N/12W-26A015	192A	65.22	8.71	16.80	17.92	12.30	1.00	21.52	48.13	16.32	72.26	70.47	115.83	446.46
1N/12W-26R015	1924	68.65	80.05	78.93	37.11	69.04	44.12	43.66	77.09	16.68	0	0	0	475.33
1N/12W-34C015	1923	32.87	26.54	19.82	11.70	7.32	10.20	27.42	11.07	8.84	21.41	37.97	43.86	259.02
1N/12W-34E025	1921A	46.58	29.00	27.83	4.02	5.11	1.87	1.67	.16	0	.16	1.87	6.19	124.46
1N/12W-35R015	1917	103.99	100.92	108.51	54.80	31.72	.17	5.80	.10	0	0	0	13.16	419.17
TOTALS:		366.16	297.26	289.42	125.55	125.49	57.36	100.07	116.55	41.84	45.92	157.83	251.98	1995.33
CANYON MUTUAL WATER COMPANY														
1N/12W-13K015	CANMU	8.74	6.03	5.67	2.04	0	0	0	0	.11	0	0	0	22.59
EAST PASADENA WATER COMPANY														
1N/11W-30J015	7	43.08	41.22	34.58	70.25	32.46	.11	2.04	.84	3.70	1.53	21.57	15.01	225.99
1N/11W-30K015	8	38.03	35.40	34.66	22.94	17.57	.92	2.87	.85	.53	.93	17.00	21.34	193.04
1N/11W-30O035	1	22.25	13.21	21.67	40.84	46.34	.13	.15	.22	.63	.24	5.16	6.69	157.53
TOTALS:		103.36	89.83	90.91	94.03	96.37	1.16	5.06	1.91	4.46	2.70	43.73	43.04	576.56

APPENDIX B: (continued)

STATE WELL NUMBER	OWNERS DESIG- NATION	PRODUCTION												TOTAL
		1974						1975						
		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
M E HUNTINGTON LIBRARY AND ART GALL														
1N/12W-34H015	CANYN	2.72	4.83	2.50	2.55	2.87	2.35	7.28	0	2.80	1.07	4.85	0	28.72
1N/12W-35C015	ORLOO	68.93	50.98	43.44	20.35	12.62	2.54	7.68	3.56	4.52	4.61	27.28	47.31	293.82
TOTALS:		71.65	55.81	45.94	22.90	15.44	4.89	9.96	3.56	7.32	5.67	32.13	47.31	322.54
KINNELOA IRRIGATION DISTRICT														
1N/11W-07N015	GLEN	0	0	0	0	0	0	0	0	0	.83	1.93	4.75	7.51
1N/11W-07N025	BROWN	0	0	0	0	0	0	0	0	0	0	3.41	5.70	9.11
1N/12W-13E035	3	22.89	22.51	21.38	10.99	5.52	2.01	4.41	1.60	1.25	1.43	8.13	13.29	115.41
1N/12W-13K015	WILCA	0	0	0	0	0	0	0	0	0	0	.80	0	.80
1N/12W-13L015	WGNR	.07	.09	.13	.12	.06	.05	.03	.03	.02	.05	.03	.04	.72
TOTALS:		22.96	22.60	21.51	11.11	5.58	2.06	4.44	1.63	1.27	2.31	14.30	23.78	133.55
MIRA LOMA MUTUAL WATER COMPANY														
1N/11W-07N015	GLEN	.55	0	0	0	6.39	.13	5.30	2.35	3.37	0	0	0	18.04
1N/11W-07N025	BROWN	4.92	5.27	4.76	2.57	1.90	0	1.35	.29	.32	0	0	0	21.38
TOTALS:		5.47	5.27	4.76	2.57	8.29	.13	6.65	2.64	3.69	0	0	0	39.47
MONROVIA, CITY OF														
1N/11W-30H015	CHAP6	58.91	29.44	109.03	109.62	113.20	101.78	89.27	99.17	116.46	58.85	7.90	11.66	905.29
PASADENA, CITY OF														
1N/11W-30D045	NCHAP	0	0	0	72.52	234.31	33.22	0	112.09	147.25	140.65	30.45	62.51	833.00
1N/12W-20A015	SUN57	134.52	170.31	128.22	104.35	170.04	87.08	112.72	147.51	142.13	188.43	61.20	93.78	1520.29
1N/12W-20B015	COPO3	48.96	222.48	201.27	191.46	168.12	90.10	90.97	78.78	188.06	195.32	69.56	66.25	1600.33
1N/12W-21K015	GA9FD	167.75	60.20	0	78.94	107.29	12.06	42.89	89.13	115.19	152.18	15.15	46.80	887.58
1N/12W-21K025	VILLA	271.38	295.15	236.63	153.52	242.91	195.35	297.87	301.53	285.44	261.56	171.29	171.53	2884.16
1N/12W-23G015	CRAIG	0	23.89	66.78	71.69	101.37	0	38.82	87.49	177.99	86.26	53.78	52.32	720.39
1N/12W-25B015	JODAN	0	0	0	0	18.58	0	0	22.07	43.78	6.75	0	44.66	135.84
1N/12W-26C015	WOBRY	112.72	51.02	0	.93	0	0	0	0	0	46.69	64.76	64.28	340.40
TOTALS:		735.33	823.05	632.90	673.41	1042.62	417.81	592.27	838.60	1079.84	1057.84	466.19	602.13	8921.99
ROYAL LAUNDRY AND DRY CLEANING CO														
1N/12W-28N015	SWELL	13.28	12.74	11.69	13.34	12.28	12.50*	12.50	10.97	10.99	10.86	11.65	10.92	143.72
SAN GABRIEL COUNTY WATER DISTRICT														
1N/12W-36E025	VN003	122.19	121.73	112.69	112.65	110.22	114.60	117.79	105.97	121.11	116.37	47.81	31.58	1234.71
SUNNY SLOPE WATER COMPANY														
1N/12W-36A015	6	221.79	229.63	171.89	48.02	51.90	0	0	0	.20	30.66	165.28	98.26	1017.63
1N/12W-36H015	1	0	0	4.27	.06	0	45.58	41.45	13.25	12.75	20.64	33.17	87.08	278.25
TOTALS:		221.79	229.63	176.16	48.08	51.90	45.58	41.45	13.25	12.95	51.30	198.45	185.34	1295.88
SUBTOTALS		1978.26		1754.45		1757.79		1159.29		1477.26		1075.22		
(PASADENA SUBAREA)		1938.53		1439.69		925.12		1295.09		1395.11		1390.67		17586.48
TOTALS		3029.90		2504.39		2567.65		1779.53		1926.09		1580.03		
(WESTERN UNIT)		2830.16		2103.65		1594.40		1679.70		1844.38		2032.49		25472.37
EASTERN UNIT (SANTA ANITA SUBAREA)														
ARCADIA, CITY OF														
1N/11W-21G025	OG01A	226.70	220.34	205.05	192.26	197.65	165.80	116.54	0	0	151.29	227.42	182.04	1885.04
1N/11W-21G055	OG005	0	0	0	0	1.45	0	0	0	0	.82	112.50	83.85	198.62
1N/11W-21H025	OG02A	209.89	207.49	191.47	190.27	186.73	189.38	128.78	0	0	105.51	1.18	0	1412.68
1N/11W-21H035	OG006	116.34	105.16	89.07	86.59	82.70	80.68	58.53	0	0	80.58	123.77	94.00	916.94
TOTALS:		552.93	532.99	485.55	469.12	470.53	435.86	303.83	0	0	338.20	464.47	359.89	4413.33
SIERRA MADRE, CITY OF														
1N/11W-21C025	4	.29	75.05	57.67	0	0	0	16.26	1.03	0	.92	28.64	139.86	
1N/11W-21C035	3	141.95	88.68	76.67	21.26	29.97	38.85	20.50	4.69	.53	17.77	28.88	46.87	512.58
1N/11W-21C065	5	140.22	112.51	58.37	45.85	53.08	28.74	66.65	40.45	87.81	48.13	120.17	58.90	856.84
1N/11W-21C075	6	11.94	29.38	61.75	91.75	44.59	33.24	34.48	5.49	.92	9.98	22.72	69.46	415.70
TOTALS:		294.40	265.62	254.46	158.88	127.64	100.87	121.63	66.89	88.29	71.88	172.65	203.83	1924.98
TOTALS		847.33		740.01		598.17		425.46		88.29		637.08		
(EASTERN UNIT)		798.61		627.98		536.69		66.89		410.88		563.72		6338.31
GRAND TOTALS		3877.23		3244.40		3165.82		2204.99		2012.38		2217.11		
		3628.77		2731.63		2131.09		1746.59		2254.46		2596.21		31810.68

* ESTIMATED

APPENDIX C

WATER RIGHT LEASES

AND

**PROGRAM FOR SPREADING CREDIT
CERTIFICATION BY LACFD
AND WATERMASTER**

AGREEMENT TO PURCHASE WATER

This Agreement to purchase water is made and entered into this 19th day of NOVEMBER, 1974, between CITY OF SIERRA MADRE, a municipal corporation, hereinafter referred to as SIERRA MADRE, and the CITY OF ARCADIA, a municipal corporation, hereinafter referred to as ARCADIA.

This Agreement is made and based upon the following facts:

Both parties to this Agreement own adjudicated water rights in the Raymond Basin as original parties to the action entitled City of Pasadena v. City of Alhambra, Los Angeles Superior Court No. Pasadena C-1323, or as a successor-in-interest to such parties.

Said rights, as originally adjudicated, have been modified and SIERRA MADRE now owns rights designated as Decreed Right 1955 giving SIERRA MADRE the right to pump or otherwise extract 1764 acre feet of water in 1974-75 from the Eastern Unit of the Raymond Basin.

SIERRA MADRE has available for purchase 500 acre feet of water in said Eastern Unit for the fiscal year ending June 30, 1975.

SIERRA MADRE desires to grant to ARCADIA the right to purchase 500 acre feet of its Decreed Right 1955 available to be pumped during the 1974-75 fiscal year for the consideration and on the terms and conditions set forth below.

ARCADIA desires to have the right to purchase 500 acre feet of said Decreed Right 1955 for the consideration and on the terms and conditions set forth below.

NOW, THEREFORE, the parties agree as follows:

1. SIERRA MADRE does hereby grant to ARCADIA the right to purchase up to a maximum of 500 acre feet of its Decreed Right 1955 available to be pumped from the Eastern Unit of the Raymond Basin at any time during the fiscal year ending June 30, 1975 for the sum of Twenty-five Dollars (\$25) for each acre foot in accordance with the formula set forth below.

2. ARCADIA does hereby agree that it shall pump its entire Decreed Right of 3526 acre feet on a normal, as-needed basis, during fiscal year 1974-75. It is understood by the parties that ARCADIA could be jeopardizing its future right to its 3526 acre feet if the full amount were not pumped during each fiscal year. After ARCADIA has pumped its aforesaid 3526 acre feet, and in the event the water elevation thereafter at the Orange Grove No. 4 Index Well remains above 500 feet, ARCADIA agrees to pump and purchase as much of the 500 acre feet of water referred to herein as reasonably possible during the remainder of the fiscal year 1974-75 as long as the aforesaid water elevation level is above 500 feet. It is understood and agreed by the parties that in the event the said water elevation falls to 500 feet or below after ARCADIA has pumped its Decreed Right of 3526 acre feet, ARCADIA shall not be bound to purchase or pump any of the 500 acre feet referred to herein. It is further understood that the

fluctuation of said water elevation level may result in ARCADIA pumping and purchasing none or only a portion of the 500 acre feet referred to herein. ARCADIA agrees to pay to SIERRA MADRE the sum of Twenty-five Dollars (\$25) per each acre foot so pumped under this Agreement.

3. An accounting of the number of acre feet pumped by ARCADIA pursuant to this option shall be forwarded on a monthly basis to SIERRA MADRE and the Watermaster from the inception of such pumping. Payment shall be made by ARCADIA to SIERRA MADRE for the water so pumped thirty (30) days following the submittal of the aforesaid monthly statement.

4. SIERRA MADRE warrants that it has the authority to sell said water rights and that ARCADIA will have the right to pump or otherwise extract from the Eastern Unit of the Raymond Basin 500 acre feet of water between the date of this Agreement and June 30, 1975.

5. ARCADIA warrants that it will use its right hereunder only in a proper and workmanlike manner in pumping or otherwise extracting water from said Eastern Unit.

6. The parties hereto will cooperate to the extent necessary to properly advise and inform the Watermaster charged with the administration of the judgment in the above-entitled action of the actions of the parties and to take such other action as is reasonably required to implement and effectuate this Agreement.

CITY OF SIERRA MADRE
a municipal corporation

By Indira Reddy
Mayor of the City of Sierra Madre

ATTEST:

Christine Van Noeren
City Clerk

CITY OF ARCADIA,
a municipal corporation

By Alton E. Smith
Mayor of the City of Arcadia

ATTEST:

Christine Van Noeren
City Clerk

AMENDMENT TO AGREEMENT

That certain Agreement between the CITY OF SIERRA MADRE, a municipal corporation and the CITY OF ARCADIA, a municipal corporation, attached hereto as Exhibit "A", is hereby amended as follows:

1. Paragraph 1 of said Agreement is amended to read as follows:

1. SIERRA MADRE does hereby grant to ARCADIA the right to purchase up to a maximum of 1,000 acre feet of its Decreed Right 1955 available to be pumped from the Eastern Unit of the Raymond Basin at any time during the fiscal year ending June 30, 1975 for the sum of Twenty-five Dollars (\$25.00) for each acre foot in accordance with the formula set forth below.

2. Paragraph 2 of said Agreement is hereby amended to read as follows:

2. ARCADIA does hereby agree that it shall pump its entire Decreed Right of 3526 acre feet on a normal, as-needed basis, during fiscal year 1974-75. It is understood by the parties that ARCADIA could be jeopardizing its future right to its 3526 acre feet if the full amount were not pumped during each fiscal year. After ARCADIA has pumped its aforesaid 3526 acre feet, and in the event the water elevation thereafter at the Orange Grove No. 4 Index Well remains above 500 feet, ARCADIA agrees to pump and purchase as much of the 1,000 acre feet of water referred to herein as reasonably possible during the remainder of the fiscal year 1974-75 as long as the aforesaid water elevation level is above 500 feet. It is understood and agreed by the parties that in the event the said water elevation falls to 500 feet or below after ARCADIA has pumped its Decreed Right of 3526 acre feet, ARCADIA shall not be bound to purchase or pump any of the 1,000 acre feet referred to herein. It is further understood that the fluctuation of said water elevation level may result in ARCADIA pumping and purchasing none or only a portion of the 1,000 acre feet referred to herein. ARCADIA agrees to pay to SIERRA MADRE the sum of Twenty-five Dollars (\$25.00) per each acre foot so pumped under this Agreement.

3. Paragraph 4 of said Agreement is hereby amended to read as follows

4. SIERRA MADRE warrants that it has the authority to sell said water rights and that ARCADIA will have the right to pump or otherwise extract from the Eastern Unit of the Raymond Basin 1,000 acre feet of water between the date of this Agreement and June 30, 1975

CITY OF SIERRA MADRE

By Joseph J. Gillett
MAYOR

ATTEST:

Patricia K. Kays
City Clerk

CITY OF ARCADIA

By Charles E. Green
MAYOR

ATTEST:

Christine M. Hansen
City Clerk

DEED OF WATER RIGHTS

For a valuable consideration, MIRA LOMA MUTUAL WATER COMPANY, a California corporation, hereby sells and transfers to KINNELOA IRRIGATION DISTRICT, an irrigation district organized and existing pursuant to Division 11 of the California Water Code:

1. The right to extract the two hundred thirty-one and eighty-seven hundredths (231 87) acre feet of grantor's "Decreed Rights, 1955" still available to grantor for the fiscal year July 1, 1974 to June 30, 1975, less the quantity of water pumped by grantor during March, 1975, to be determined by the Watermaster, together with the annual right thereafter to extract two hundred eighty-seven (287) acre feet of "Decreed Rights 1955" allocated to grantor and its predecessors-in-interest under and pursuant to the Judgment dated December 23, 1944 and entered in Los Angeles Superior Court Case No. Pasadena C-1323 entitled "City of Pasadena v. City of Alhambra, et al" and modified on April 29, 1955.

2. The right to extract an additional quantity of 1179.2 acre feet of water, resulting from the grantor and its predecessors-in-interest not having fully exercised their annual "Decreed Rights 1955", which quantity may be produced at an annual rate of not to exceed 294.8 acre feet for the four water years beginning with the water year July 1, 1974 to June 30, 1975

Dated: April 4, 1975

MIRA LOMA MUTUAL WATER COMPANY

By Ben A. Rogers, President

By Virginia Rogers, Secretary

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

On April 4, 1975, before me, the undersigned, a Notary Public in and for said state, personally appeared BEN A. ROGERS, known to me to be the President, and VIRGINIA ROGERS, known to me to be the Secretary of the corporation that executed the within instrument, known to me to be the persons who executed the within instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its board of directors

WITNESS my hand and official seal

Karen L. Morrison
Notary Public in and for said State



DEED OF WATER RIGHTS

CANYON MUTUAL WATER COMPANY, a California corporation, hereby transfers and conveys to MIRA LOMA MUTUAL WATER COMPANY, a California corporation:

1. The right to extract the one hundred twenty-four and three hundredths (124.03) acre feet of grantor's "Decreed Rights, 1955" available to grantor for the fiscal year July 1, 1974 to June 30, 1975, together with the annual right thereafter to extract one hundred twenty-seven (127) acre feet of "Decreed Rights 1955" allocated to grantor under and pursuant to the Judgment dated December 23, 1944 and entered in Los Angeles Superior Court Case No. Pasadena C-1323 entitled "City of Pasadena v. City of Alhambra, et al." and modified on April 29, 1955.

2. The right to extract an additional quantity of 532 acre feet of water, resulting from the Canyon Mutual not having fully exercised its annual "Decreed Rights 1955", which quantity may be produced at an annual rate of not to exceed 133 acre feet for the four water years beginning with the water year July 1, 1974 to June 30, 1975.

Dated: April 2, 1975

CANYON MUTUAL WATER COMPANY

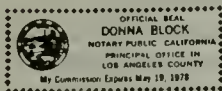
By John E. Osborn
John E. Osborn, President

By Phillip E. Sauremen
Phillip E. Sauremen, Secretary

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss

On April 2, 1975, before me, the undersigned, a Notary Public in and for said state, personally appeared JOHN E. OSBORN, known to me to be the President, and PHILLIP E. SAUREMEN, known to me to be the Secretary of the corporation that executed the within instrument, known to me to be the persons who executed the within instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal



Donna Block
Notary Public in and for said State

DEED OF WATER RIGHTS

For a valuable consideration, JOHN E. OSBORN, ELDON M. OSBORN, C. RICHARD OSBORN and STANLEY E. OSBORN hereby sell and transfer to MIRA LOMA MUTUAL WATER COMPANY, a California corporation.

1. The right to extract the twenty-eight hundredths (.28) acre feet of grantor's "Decreed Rights, 1955" available to grantor for the fiscal year July 1, 1974 to June 30, 1975, together with the annual right thereafter to extract twelve (12) acre feet of "Decreed Rights 1955" allocated to grantor's predecessors-in-interest under and pursuant to the Judgment dated December 23, 1944 and entered in Los Angeles Superior Court Case No. Pasadena C-1323 entitled "City of

Pasadena v. City of Alhambra, et al." and modified on April 29, 1955.

2. The right to extract an additional quantity of 223.2 acre feet of water, resulting from the Osborns not having fully exercised their annual "Decreed Rights 1955", which quantity may be produced at an annual rate of not to exceed 55.8 acre feet for the four water years beginning with the water year July 1, 1974 to June 30, 1975.

Dated: April 1, 1975

John E. Osborn
John E. Osborn

Eldon M. Osborn
Eldon M. Osborn

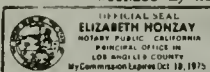
C. Richard Osborn
C. Richard Osborn

Stanley E. Osborn
Stanley E. Osborn

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss

On April 1, 1975, before me, the undersigned, a Notary Public in and for said State, personally appeared JOHN E. OSBORN, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same

WITNESS my hand and official seal.

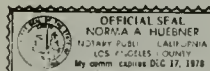


Elizabeth Monzay
Notary Public in and for said State

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss

On April 1st, 1975, before me, the undersigned, a Notary Public in and for said State, personally appeared ELDON M. OSBORN, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same.

WITNESS my hand and official seal

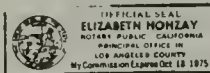


Norma A. Huebner
Notary Public in and for said State

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss

On April 1, 1975, before me, the undersigned, a Notary Public in and for said State, personally appeared C. RICHARD OSBORN, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same.

WITNESS my hand and official seal.



Elizabeth Monzay
Notary Public in and for said State

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss

On April 1, 1975, before me, the undersigned, a Notary Public in and for said State, personally appeared STANLEY E. OSBORN, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same

WITNESS my hand and official seal.



Elizabeth Monzay
Notary Public in and for said State

WATER RIGHT LICENSE AND AGREEMENT

For a valuable consideration, the Pasadena Cemetery Association grants to the Lincoln Avenue Water Company: A license to extract 50 acre-feet of licensee's "Decreed Right 1955" allocated to licensor (or predecessor in interest) under and pursuant to Judgment dated December 23, 1944 and entered in Los Angeles Superior Court Case No. Pasadena C-1323 entitled "City of Pasadena vs. City of Alhambra et al" during the period commencing July 1, 1974 and continuing to and including June 30, 1975.

Said license is granted, subject to the following conditions:

- (1) Licensee shall exercise said right and extract the same on behalf of the Pasadena Cemetery Association during the period above specified and put the same to beneficial use and licensee shall not by the exercise hereunder of said right acquire any right to extract water independent of the rights of licensor.
- (2) Licensee shall notify the Watermaster that said pumping was done pursuant to this license and provide the Watermaster with a copy of this document within thirty (30) days thereof.
- (3) Licensee shall note, in any recording of water production for the period of agreement, that said pumping was done pursuant to this license.
- (4) Licensee's "Decreed Right 1955" shall not be increased by the amount hereby leased when computing carryover or allowable overextraction as provided by Paragraph V and VI in said Judgment.

The Pasadena Cemetery Association warrants that it has over 50 acre-feet of "Decreed Right 1955" and that it has not pumped and will not pump or permit or license any other person to pump any part of said 50 acre-feet during period of July 1, 1974 through June 30, 1975.

Dated: June 5, 1975

PASADENA CEMETERY ASSOCIATION

LINCOLN AVENUE WATER COMPANY

By Paul Brown
Title Secretary

By Norman Corti
Title General Manager

WATER RIGHT LICENSE AND AGREEMENT NO. 9564

THIS WATER RIGHT LICENSE AND AGREEMENT, by and between the CITY OF ALHAMBRA, a municipal corporation, herein referred to as "Alhambra", and the CITY OF PASADENA, a municipal corporation, herein referred to as "Pasadena",

WITNESSETH:

For the consideration herein recited, Alhambra hereby grants to Pasadena a license to extract 400 acre-feet of Alhambra's "Decreed Right 1955" allocated to Alhambra (or predecessor in interest) under and pursuant to Judgment dated December 23, 1944 and entered in Los Angeles Superior Court Case No. Pasadena C-1323 entitled "City of Pasadena vs. City of Alhambra et al" during the period commencing July 1, 1974 and continuing to and including June 30, 1975.

Said license is granted, subject to the following conditions:

- (1) Pasadena shall exercise said right and extract the same on behalf of Alhambra during the period above specified and put the same to beneficial use and Pasadena shall not by the exercise hereunder of said right acquire any right to extract water independent of the rights of Alhambra.
- (2) Pasadena shall notify the Watermaster that said pumping was done pursuant to this license and provide the Watermaster with a copy of this document within thirty (30) days thereof.
- (3) Pasadena shall note, in any recording of water production for the period of agreement, that said

pumping was done pursuant to this license.

(4) Pasadena's "Decreed Right 1955" shall be increased by the amount hereby leased when computing carryover or allowable overextraction as provided by Paragraph V and VI in said Judgment.

(5) Pasadena agrees to pay Alhambra the sum of \$14,000.00 within sixty (60) days after the date of this agreement.

Alhambra warrants that it has 400 acre-feet of "Decreed Right 1955" and that it has not pumped and will not pump or permit or license any other person to pump any part of said 400 acre-feet during period of July 1, 1974 through June 30, 1975.

DATED: April 29, 1975

CITY OF ALHAMBRA

By John W. Whitefield
City Manager
James W. Whitefield
City Attorney
Harold McKenney
City Clerk

CITY OF PASADENA

By Walter L. Benedict
Chairman of the Board of Directors
of the City of Pasadena
Harold C. Jenkins
City Clerk

RESOLUTION ON WATER RIGHT LICENSE AND
AGREEMENT NO. 9564
April 29, 1975

Introduced by Director Walter L. Benedict

BE IT RESOLVED by the Board of Directors of the City of Pasadena that the Water Right License and Agreement presented herewith, between the City of Alhambra and the City of Pasadena pertaining to license to extract water from the Raymond Basin, be and the same hereby is approved, that the Chairman of the Board of Directors be and he hereby is authorized and directed to execute the same for and on behalf of the City, the City Clerk is directed to attest his signature and affix the corporate seal of the City thereto, and that the Director of Finance be and he hereby is authorized and directed to appropriate out of the Water Fund the sum of \$14,000 for the consideration set forth in said Water Right License and Agreement.

Adopted by the said Board of Directors by the following vote:

Ayes: Directors Benedict, Matthews, McKenney, White, Wilfong, Yokaitis
Noes: None
Absent: Director Jones

WATER RIGHT LICENSE AND AGREEMENT NO. 9563

THIS WATER RIGHT LICENSE AND AGREEMENT, by and between the KINNELOA IRRIGATION DISTRICT, herein referred to as "Kinnelea", and the CITY OF PASADENA, a municipal corporation, herein referred to as "Pasadena",

W I T N E S S E T H:

For the consideration herein recited, KINNELOA IRRIGATION DISTRICT hereby grants to the CITY OF PASADENA a license to extract 236.60 acre-feet of Kinnelea's "Decreed Right 1955", and 523.40 acre-feet of Kinnelea's "Carry-over from 1973-74" allocated to Kinnelea (or predecessors in interest) under and pursuant to Judgment dated December 23, 1944, and entered in Los Angeles Superior Court Case No. Pasadena C-1323 entitled "City of Pasadena vs. City of Alhambra et al" during the period commencing July 1, 1974, and continuing to and including June 30, 1975.

Said License is granted, subject to the following conditions:

(1) Pasadena shall exercise said right and extract the same on behalf of Kinnelea during the period above specified and put the same to beneficial use and Pasadena shall not by the exercise hereunder of said right acquire any right to extract water independent of the rights of Kinnelea.

(2) Pasadena shall notify the Watermaster that said pumping was done pursuant to this License and provide the Watermaster with a copy of this document within thirty (30) days thereof.

(3) Pasadena shall note, in any recording of water production for the period of agreement, that said pumping was done pursuant to this license.

(4) Pasadena's "Decreed Right 1955" shall be increased by the amount hereby leased when computing carryover or allowable overextraction as provided by Paragraph V and VI in said Judgment.

(5) Pasadena agrees to pay Kinnelea the sum of \$26,600 within 60 days after date of this agreement.

KINNELOA warrants that it has 236.60 acre-feet of "Decreed Right 1955" and 523.40 acre-feet of "Carry-over from 1973-74" and that it has not pumped and will

not pump or permit or license any other person to pump any part of said 760 acre-feet during period of July 1, 1974 through June 30, 1975.

DATED: April 29, 1975

KINNELOA IRRIGATION DISTRICT

By [Signature]
[Signature] (Title)
By [Signature]
Secretary (Title)

CITY OF PASADENA

By [Signature]
Chairman of the Board of Directors of
(Title) the City of Pasadena

ATTEST: [Signature]
City Clerk

RESOLUTION ON WATER RIGHT LICENSE AND
ACREEMENT NO. 9563

April 29, 1975

Introduced by Director Walter L. Benedict

BE IT RESOLVED by the Board of Directors of the City of Pasadena that the Water Right License and Agreement presented herewith, between the City of Pasadena and Kinnelea Irrigation District pertaining to license to extract water from the Raymond Basin, be and the same hereby is approved, that the Chairman of the Board of Directors be and he hereby is authorized and directed to execute the same for and on behalf of the City, the City Clerk is directed to attest his signature and affix the corporate seal of the City thereto, and that the Director of Finance be and he hereby is authorized and directed to appropriate out of the Water Fund the sum of \$26,600 for the consideration set forth in said Water Right License and Agreement.

Adopted by the said Board of Directors by the following vote:

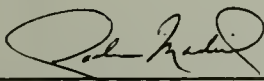
Ayes: Directors Benedict, Matthews, McKenney, White,
Wilfong, Yoksis
Noes: None
Absent: Director Jones

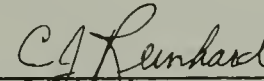
PROGRAM FOR SPREADING CREDIT CERTIFICATION
BY LACFCD AND WATERMASTER

Month/Year	Kinneloa Irrigation District		Las Flores Water Company		Lincoln Avenue Water Company		City of Pasadena				Rubio Canon Land & Water Association	
							Arroyo Seco		Eaton Canyon			
	Diverted	Spread	Diverted	Spread	Diverted	Spread	Diverted	Spread	Diverted	Spread	Diverted	Spread
July 1974	0.29	0.29	3.67	3.67	13.20	13.20	0	0	23.12	23.12	11.22	11.22
Aug. 1974	0.74	0.74	3.76	3.76	19.14	19.14	0	0	36.49	36.49	9.37	9.37
Sept. 1974	0.76	0.76	2.06	2.06	12.96	12.96	0	0	27.01	27.01	8.23	8.23
Oct. 1974	0.82	0.82	1.98	1.98	22.14	22.14	0	0	30.63	30.63	7.64	7.64
Nov. 1974	0.77	0.77	1.27	1.27	21.49	21.49	0	0	34.75	34.75	9.43	9.43
Dec. 1974	0.09	0.09	1.85	1.85	69.57	67.90	10.00	10.00	48.95	48.95	8.77	8.77
Jan. 1975	0	0	0.69	0.69	54.32	54.32	6.63	6.63	43.99	43.99	8.12	8.12
Feb. 1975	0	0	1.63	1.63	19.70	19.52	38.24	38.24	93.36	93.36	10.29	10.29
Mar. 1975	0.73	0.73	4.13	4.13	122.20	93.89	80.52	80.52	105.60	105.60	32.55	32.55
Apr. 1975	0.83	0.83	3.79	3.79	128.22	126.45	81.90	79.88	164.50	164.50	23.92	23.92
May 1975	1.55	1.55	1.70	1.70	97.39	97.39	0	0	118.20	118.20	13.05	13.05
June 1975	0.56	0.56	1.32	1.32	80.58	80.58	0	0	72.28	72.28	8.36	8.36
TOTAL	7.14	7.14	27.85	27.85	660.91	628.98	217.29	215.27	798.88	798.88	150.95	150.95

The Watermaster has reviewed the above figures and certifies that the amounts shown as diverted are correct.

The LACFCD has reviewed the above figures and certifies that the amounts shown as spread are correct.


Carlos Madrid
Deputy Watermaster
Department of Water Resources


C. J. Reinhard
Supervising Civil Engineer II
Los Angeles County Flood Control District



